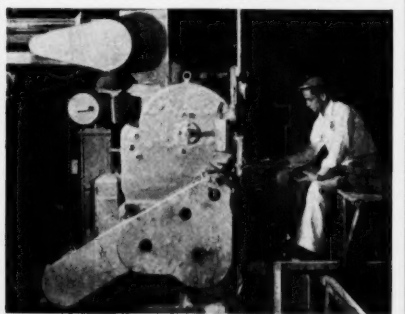
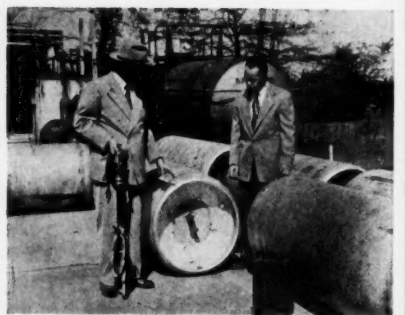


Chemical Week

November 22, 1952

Price 35 cents



Who, what, where? Here's an easy-to-use breakdown of DPA fast write-offs p. 17

▶ Research Corp.'s Barker: "Invention perpetually repays research; harvest . . . to plant again" . . . p. 37

▶ CW Camera sees how chlorine "retailer" buys by tank car, sells by cylinder p. 46

▶ Now it's wetting agents in fertilizer; dividends: easier to make, easier to use p. 50

Formaldehyde makers foresee upturn—but they won't buy DPA's sky-grazing goal p. 63

Mathieson announces...

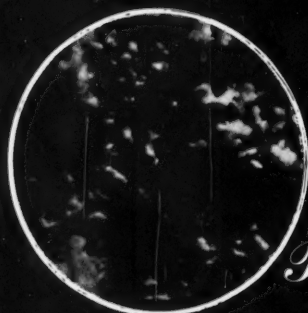
LIGHT SODA ASH



Coarse

40X

IN THREE DISTINCT GRANULATIONS

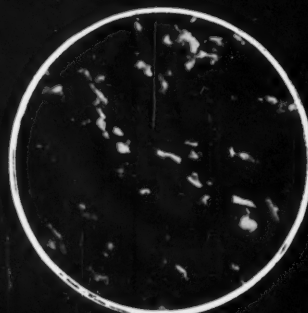


Regular

40X

Each granulation demonstrates individual characteristics as to:

density
flowability
rate of solubility
clarity of solution
screen analysis



Fine

40X

Limited quantities are immediately available for experimental work and semi-commercial testing, with larger tonnages to be made available as required. Shipments from Saltville, Virginia. For complete information see your Mathieson representative or write direct.

Mathieson
CHEMICALS

MATHIESON INDUSTRIAL CHEMICALS COMPANY
Division of
MATHIESON CHEMICAL CORPORATION, BALTIMORE 3, MD.

9414

Chemical Week

Volume 71 Number 21
November 22, 1952

OPINION	2
NEWSLETTER	11
BUSINESS & INDUSTRY	15
RESEARCH	37
DISTRIBUTION	46
SPECIALTIES	50
MARKETS	59
PRODUCTION	69
BOOKLETS	76

PUBLISHER Wallace F. Traendly
EDITORIAL DIRECTOR S. D. Kirkpatrick
EDITOR W. Alec Jordan
MANAGING EDITOR .. Howard C. E. Johnson
ASSOCIATE EDITOR John J. Craig

ASSISTANT EDITORS: Donald P. Burke, Raymond H. Laver, E. William Olcott, Anthony J. Piombino, Ralph R. Schulz, Homer Starr, E. L. Van Deusen, J. R. Warren.
REGIONAL EDITORS: Frank C. Byrnes, Chicago; Bob Cochran, Cleveland; John Kent, Washington; James A. Lee, Houston; Elliot Schrier, San Francisco. ART EDITOR: Woodfin G. Mizell, Jr. EDITORIAL ASSISTANTS: Caryl Austrian, Nancy Seligsohn. DOMESTIC AND FOREIGN NEWS SERVICE: McGraw-Hill Bureaus in principal cities of the U.S. and throughout the world. CONSULTING EDITORS: Lawrence W. Bass, Benjamin T. Brooks, John V. N. Dorr, Charles R. Downs, Ernest W. Reid, Norman A. Shepard, Roland P. Soule, Robert L. Taylor. BUSINESS STAFF & REGIONAL OFFICES: See page facing back cover.



Chemical Week (including Chemical Specialties, and Chemical Industries) is published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. Publication Office: 1309 Noble St., Philadelphia 23, Pa.

Executive Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President. Publications Division: Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions to Chemical Week are solicited in the chemical and process industries from management men in administration, research, production and distribution. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 1309 Noble St., Philadelphia 23, Pa., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Single copies 35¢. Subscription rates—United States and Possessions \$5.00 a year; \$8.00 for two years; \$10.00 for three years. Canada \$6.00 for a year; \$10.00 for two years; \$12.00 for three years. Other Western Hemisphere Countries \$15.00 a year; \$25.00 for two years; \$30.00 for three years. All other countries \$25.00 a year; \$40.00 for two years; \$50.00 for three years. Entered as second class matter December 20, 1951, at the Post Office at Philadelphia 23, Pa., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1952 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

**Tackifiers can make
your adhesive job
BETTER ...
at lower cost, too!**



A leading shoe manufacturer was having difficulty bonding vinyl welting. Poor adhesion caused an excessive number of rejects. This resulted in lost production time and an unusually high percentage of seconds.

Finally he incorporated ARCCO resin emulsion tackifier in his natural rubber latex—result, he is now getting production without rejects. Important, too, he is now enjoying worthwhile savings in his adhesive costs.

Specific types of resin emulsions, with varied properties, are available to users of natural and synthetic rubber latices where increased adhesion, tack or reinforcement is required.

**TACKIFIERS and
REINFORCERS
FOR THE JOB**

High Bond Strength • Quick Grab • Dry or Delayed Tack • Pressure Sensitivity
Specific Adhesion • Cohesion • Improved Tensile • Economy.

COATINGS, SATURANTS, BINDERS, ADHESIVES, SIZES combining or laminating adhesives for fabric, paper, films and foils. Packaging adhesives • Shoe adhesives • Plush backsizing compounds. Paper saturants • Binders for asbestos, sisal fibers, curled hair.

For information on ARCCO Tackifiers and Reinforcers write for Data Sheet A-45.



**AMERICAN RESINOUS
CHEMICALS CORPORATION**

RESIN EMULSIONS, SOLUTIONS AND HOT MELTS FOR ADHESIVE BASES, BINDERS, COATINGS, SIZES AND SATURANTS

GENERAL OFFICES: 103 FOSTER STREET, PEABODY, MASSACHUSETTS

**NEWARK
Metallic
FILTER
CLOTHS**

**Weaves
that
STOP
the Solids!**



Enlargements 4X

Here are five different weaves of Newark Metallic Filter Cloths. All different in the arrangement of the strands; hence different also in their functioning.

Study the shape of the solids in your solution being filtered. That's just as important as the size, if you want clarity of filtrate. Then write us fully about the solids and we'll be glad to recommend the weave of the cloth that will "stop" them.

Many malleable metals are still available so, if necessary, we can probably supply you with a material that will also withstand highly corrosive conditions. When writing, also give solution characteristics.

All Newark Filter Cloths are woven in our own plant, on our own looms, by our own skilled weavers.

Our entire line of Filter Cloths, Wire Mesh and Space Cloth, Sieves, "End-Shak" Testing Units and other Newark Products are described fully in our new Catalog D. Send for a copy.



**Newark Wire Cloth
COMPANY**

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. San Francisco, Calif. Chicago, Ill. New Orleans, La. Los Angeles, Calif. Houston, Texas
1911 Widener Bldg. 3100 19th St. 20 N. Wacker Dr. 520 Maritime Bldg. 1400 So. Alameda St. P. O. Box 1970

OPINION....

Vital Link

TO THE EDITOR: We would like to comment on your recent article entitled "The \$100 Million Market for Waxes" by James E. Sayre and Charles J. Marsel:

Nowhere does the article mention Moore & Munger as a contributor to research and development in wax over the past 25 years. For example, the authors mention the use of polyisobutylene and polyethylene . . . using the trade names of Esso, Solvay, and DuPont. Moore & Munger introduced these very important additives. A mention is made . . . of milk container wax, also developed by this firm.

[They] mention Esso Standard as having a well established position in the microcrystalline wax field; Moore & Munger developed and is marketing that company's microcrystalline wax. . . . Table 6 lists a number of producers of waxes and blends. Moore & Munger does not appear.

All these specific references do not embrace the primary fact: In the field of paraffin wax, Moore & Munger is the largest single factor in this country, both in marketing and development and is so generally recognized. We believe that some mention should have been made of this fact. . . .

FRANK V. SNYDER
Moore & Munger
New York 6, New York

Authors Sayre and Marsel (and CW's editors) did, unfortunately, let their emphasis on basic wax producers overshadow the pioneering research and development work carried out by Moore & Munger. Too, this firm should have been included among producers of wax blends.—Ed.

Bunk Advocate

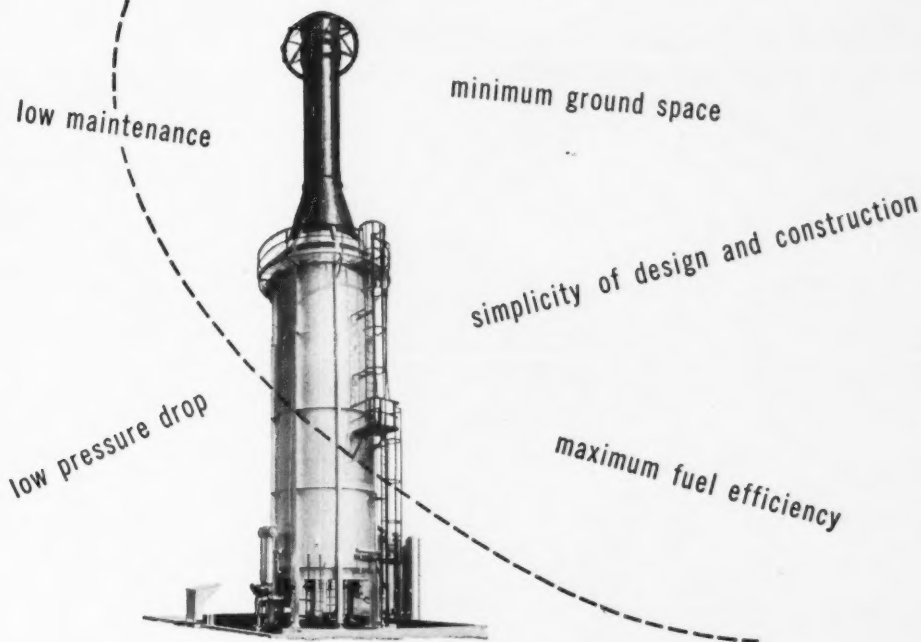
TO THE EDITOR: As a biologist who has spent years of effort . . . to develop agricultural chemicals which might be useful in increasing and improving crop production, I find your editorial (Nov. 8) criticizing the school of thought which advocates that chemicals used agriculturally are inherently harmful . . . to be a fair appraisal of and reply to those unscientific views.

There is no question but that all new chemicals to be used in food production should be carefully reviewed by scientific studies to ensure against danger to the public, but [the organic farmers'] point of view negates the possibilities of finding and

most efficient

PETRO-CHEM ISO-FLOW FURNACES

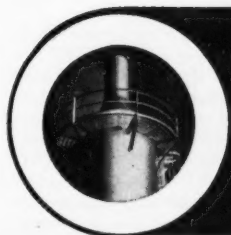
by any comparison



BETTER HEAT DISTRIBUTION...

More than 1000 are in operation throughout the world in the petroleum, chemical and allied industries . . . for all processes and for any duty, pressure, temperature and efficiency . . . and all Petro-Chem Iso-Flow Furnaces are pre-eminently satisfactory.

maximum outlet temperature can only be obtained with uniform heat distribution and it's the uniform heat distribution characteristic, inherent in the design of Petro-Chem Iso-Flow Furnaces that permits optimum operating efficiency of gas cracking units . . . maximum production of catalytic cracking feed stocks . . . maximum yields of overhead products in vacuum operation.



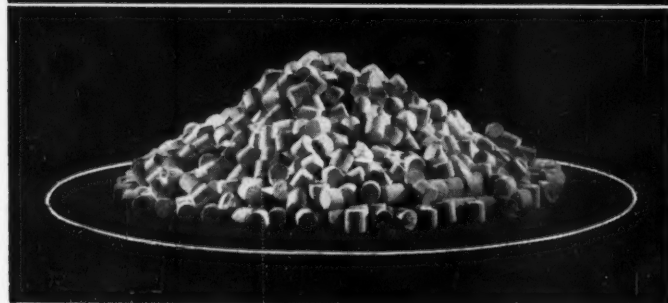
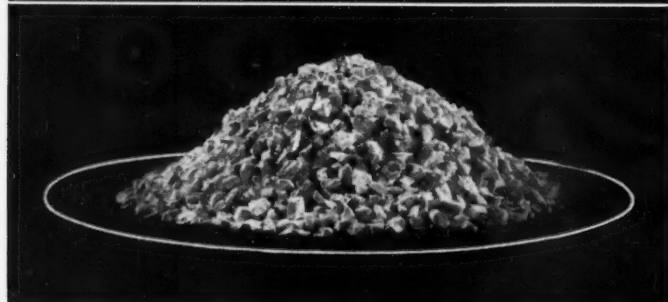
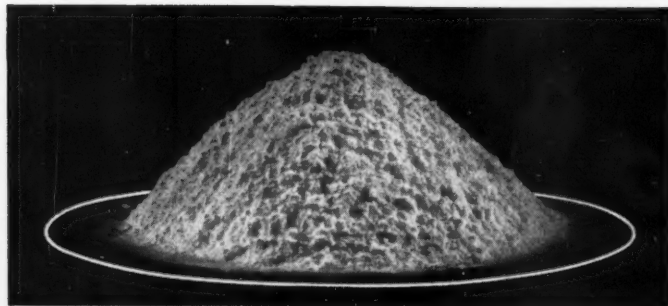
PETRO-CHEM ISO-FLOW FURNACES

UNLIMITED IN SIZE . . . CAPACITY . . . DUTY

PETRO-CHEM DEVELOPMENT CO., INCORPORATED

122 EAST 42ND STREET, NEW YORK 17, N. Y.

Representatives: Bethlehem Supply, Tulsa and Houston • Flagg, Brackett & Durgin, Boston • D. D. Foster, Pittsburgh • Faville-Levally, Chicago • Lester Oberholtz, California • Gordon D. Hardin, Louisville, Kentucky



Filtrol CATALYSTS and ADSORBENTS, in a wide variety of powders, granules and pellets, have proved their high efficiency and low cost in many chemical process applications. Have you evaluated a sample for your process?



WRITE TODAY for your copy of the new Filtrol pamphlet which may suggest many new uses to you.

Filtrol
CORPORATION
CHEMICAL DIVISION

General Offices:
727 West 7th St., Los Angeles 17, California

*U. S. REG. U. S. PAT. OFF.

THE WORLD'S LARGEST MANUFACTURERS OF CATALYSTS, ADSORBENTS, DESICCANTS AND OTHER CHEMICALLY TREATED MATERIALS

OPINION

using chemicals which make for human progress.

You ask your readers, "Will you let them get away with it?"

My small contribution . . . to offset the harm which these people might accomplish is:

The nature cults
Bunk advocate,
Loud proclaim views
Facts vitiate.

NATHANIEL TISCHLER
Palmyra, N. J.

Facts vs. Half-Truths

TO THE EDITOR: In regard to the developing conflict between the organic gardening proponents and the chemical fertilizer industry (Nov. 8), both sides seem to be half right.

There is no question . . . that adding humus to soil promotes good water retention and stimulates the growth of useful soil micro-organisms. It is likewise true that plants cannot use organic nutrients until these have been broken down by the soil bacteria and the plants to build new organic structures.

All plant nutrients are "inorganic" when ingested by the plants. Thus, when a grower supplies inorganic nutrients . . . he is merely by-passing the first step in making organic nutrients available for plant nutrition.

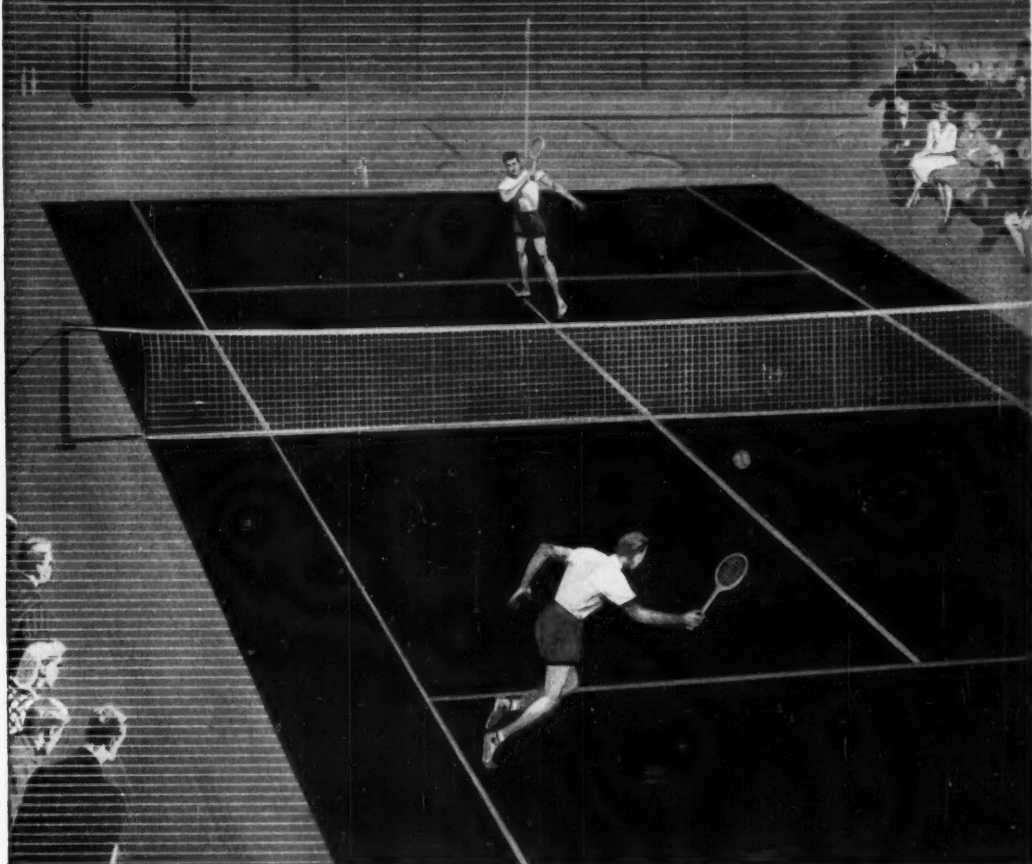
A simple experiment would establish this point beyond any argument: (1) A sample of soil should be leached of most of its soluble nutrients. (2) It should be mixed with the so-called "organic foods," i.e., undigested plant tissue . . . (3) The mixture should be sterilized to kill all bacteria and soil micro-organisms . . .

A second portion of the leached soil should be treated with an appropriate "chemical" or "inorganic" fertilizer and sterilized in the same manner. Finally, seeds of several plants such as corn, peas, wheat, oats, etc., should be planted in the soil samples after careful cleaning and sterilization of their surfaces by a harmless antiseptic or antibiotic mixture. Planting should be done under aseptic conditions . . . the surface of the soil protected . . . from air-borne bacteria. All water should be sterile . . .

Under these conditions the seeds should all sprout but those in the "organic" soils would die due to lack of enough soluble nutrients. Those in the "chemical" soil would prosper due to the availability of soluble nutrients. It isn't the "organic"—it's the organisms.

To insure maximum plant yields and plant health one should provide

NEW PATTERNS FOR PROFIT



Ever hear of "packaged tennis courts"?

A "packaged indoor tennis court" ... a court with just the right bounce for tournament play ... one that would last a lifetime ... a court that could be permanently marked, rolled up and delivered by truck.

Dreaming? Not at all ... here is another money-making idea which could become a reality, thanks to new chemical materials called elastomers.

These elastomers ... based on **styrene monomer** made by Monsanto ... can be used in hundreds of applications. They are excellent

for compounding pigments and fillers. They can be molded into shoe heels, fabricated into luggage, and used for making wire coatings. Best of all, they have great production flexibility. You can cure styrene-butadiene elastomers to slabs or sheets, or process them on calenders into heavy-gauge films.

To find out how these elastomers can build new profits for your business, write today to **Monsanto Chemical Company, Department A, Texas Division, Texas City, Texas.**

They use styrene derivatives—can you?

Electrical Appliances	Copolymer Resins
Shoes and Luggage	Construction Materials
Wall and Floor Tile	Fixtures
Boats	Coatings for Paper and Textiles
Rubber-Based Paints	Automobile and Truck Bodies
Conveying Equipment	Oil Paints
Adhesives	Baking Enamels



SERVING INDUSTRY...WHICH SERVES MANKIND

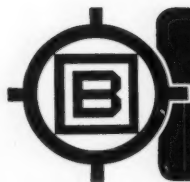
He Had the Secret Long Ago



BARECO *Microcrystalline* WAXES

Before the dawn of history the bee knew and used the **protective qualities** of WAX. Today the many customers of the Bareco Oil Company **also** enjoy these qualities in man-made wax . . . microcrystalline wax, manufactured from select petroleum crudes. For high melting points . . . excellent heat sealing characteristics . . . high water vapor resistance — test Bareco Microcrystalline Waxes in your own laboratory.

Write FOR FREE WAX SAMPLES



BARECO OIL CO.

BOX 2009, TULSA, OKLA.
121 S. BROAD ST., PHILADELPHIA, PA.
1500 S. WESTERN AVE., CHICAGO, ILL.

OPINION

both organic and chemical fertilizers and possibly soil conditioners as well.

Organic and chemical fertilizers favor good soil structure . . . maximum water retention in the area of root growth. Organic material serves the added function of providing some nutrients as it is broken down by soil bacteria . . . furnishes a fairly constant supply of soluble nutrients. Chemical fertilizers add to this supply of soluble nutrients. This double-barreled approach insures good nutrition for both the soil bacteria and the plants (both require soluble nutrient salts).

Over-use of organic materials can lead to souring of soils, over-use of inorganic fertilizers can lead to drying out of soil and poor structure. Use of both in the proper proportions leads to good structure, good water retention, continuous supply of soluble nutrients and maximum yields.

Let's not allow [organic] zealots to cause trouble by use of half-truths when the whole truth is available and so easy and logical to understand.

No matter what humans say or think, the growing plant is the final answer as to what it needs. The fact that yields improve with the use of both organic and inorganic fertilizers is proof that both furnish useful nutrients and contribute to good environment for healthy growth of the plant.

No fight seems necessary when the plants themselves can answer all the zealots.

KENNETH L. CARTWRIGHT
Manager, Nutritional Division
Charles Bowman & Co.
New York, N. Y.

Non-Toxic Waxes

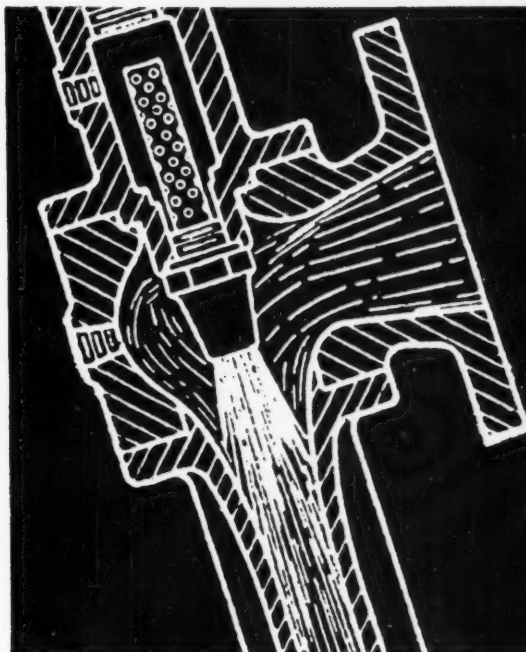
TO THE EDITOR: . . . Re my earlier comments (Nov. 15) and those of Mr. Venable concerning the toxic effect of some chlorinated paraffins . . . our statement that Chlorowax 40 and 70 are non-toxic is based upon the tests made for us by the Smyth Laboratories (Philadelphia).

In addition, in our many years of producing these products . . . and testing in our laboratories . . . our people have never reported receiving a rash from them. . . .

They are used in a variety of appli-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



this evactor works for "nothing"

By that we mean, of course, that Croll-Reynolds Evactors achieve vacuums up to a few microns absolute pressure, close to "nothing".

The wonder of steam-jet-vacuum equipment is its extreme simplicity. There are no moving parts to repair, maintain and adjust and yet these trouble-free pumps achieve performance and efficiency levels in many processes unobtainable with mechanical pumps. They can handle large volumes of very low density vapor at high vacuum. Velocities up to 4,000 feet per second in the motivating fluid help to explain these results that are impossible with mechanical vacuum pumps.

Croll-Reynolds supplies Evactors in 1, 2, 3, 4 and 5-stage units, operating in the following pressure ranges:

- 1-stage 3 inches of mercury absolute or higher
- 2-stage 0.5 to 4 inches of mercury absolute
- 3-stage 2 to 12 millimeters of mercury absolute
- 4-stage 0.15 to 3 millimeters of mercury absolute
- 5-stage down to a few microns

The one and two stage units are used primarily to remove non-condensables, in priming and in vapor removal. Three-stage Evactors find application in the growing field of vacuum refrigeration, and in

the chemical, food and petroleum industries. Four and five-stage units meet demanding vacuum requirements in many fields.

Many thousands of Croll-Reynolds Evactors are in operation, some of them for over 30 years. They are installed in every state of the United States and in many foreign countries. Let our technical staff help you with your vacuum problems.

INFORMATION NEEDED FOR QUOTATIONS

1. MINIMUM STEAM PRESSURE.
2. MAXIMUM TEMPERATURE OF CONDENSING WATER.
3. MINIMUM ABSOLUTE PRESSURE REQUIRED.
4. MAXIMUM DISCHARGE PRESSURE.
5. TYPE OF LOAD; THIS TO INCLUDE MOLECULAR WEIGHT OF GAS OR VAPORS OTHER THAN AIR AND PERCENTAGE OF EACH GAS OR VAPOR MAKING UP LOAD.
6. AMOUNT OF LOAD TO BE HANDLED PREFERABLY IN POUNDS PER HOUR.
7. TEMPERATURE OF LOAD.
8. TYPE OF CONDENSER DESIRED; BAROMETRIC OR SURFACE TYPE.
9. SPECIAL MATERIALS OF CONSTRUCTION NEEDED.

All of the above information is important for any EVACTOR with intercooler, pre-cooler or aftercooler. Items 1, 3, 4, 5, 6, 7 and 9 are important for single stage and other non-condensing EVACTORS. Blank inquiry sheets are available on request, also literature.



CROLL-REYNOLDS CO., INC.

MAIN OFFICE: 751 GRAND CENTRAL AVENUE, WESTFIELD, NEW JERSEY
17 JOHN STREET, NEW YORK 38, N. Y.

CHILL-VACTORS

STEAM JET EVACTORS

CONDENSING EQUIPMENT



IT'S Thanksgiving time again . . . when the beautiful colors of autumn, the bountiful harvest, the savor of the traditional feast remind us once more to be thankful for the blessings which we in America enjoy.

The chemical industry has played an important part in making the America of today . . . and Raymond is proud that producers, packers, and shippers of more than 200 different chemicals specify **RAYMOND MULTI-WALL PAPER SHIPPING SACKS** for their packing and shipping needs.

Raymond Shipping Sacks are CUSTOM BUILT to meet individual requirements . . . made in various types, sizes, and strengths. They are available printed in multi-colors or plain. Sift-proof, dust-proof, and water-resistant, these tough, strong, dependable Shipping Sacks protect the product all the way from packer to user.

For a complete explanation of the advantages of Raymond Shipping Sacks, wire, write, or phone Raymond today; a representative will be glad to help you select the ideal Raymond Shipping Sack for your particular product.

THE RAYMOND BAG COMPANY
MIDDLETOWN, OHIO



OPINION

cations . . . none of our customers has ever suffered any ill effects from handling these products. . . .

H. S. OLSON
Diamond Alkali Co.
Cleveland, Ohio

Annual Reference Issue

TO THE EDITOR: A copy of your Buyer's Guide Issue (Nov. 1) has just come in and we are most favorably impressed by its usefulness for reference purposes.

We therefore congratulate you on the completion of this big task . . . You are surely rendering all-round great service to the chemical profession as well as to chemical manufacturers . . .

W. A. HAMOR
Director of Research
Mellon Institute of Industrial Research
Pittsburgh, Pa.

Tasty Apples

TO THE EDITOR: I read that letter (Nov. 1) about chemical sprays and your reply. I can bear witness that your reply [to the organic farming enthusiast] was mild. . . . Don't spray and the bugs will eat your young plants before they are grown up. That's general. Here is something more accurate. . . .

For the last few years we have been in the habit of raiding an abandoned orchard for apples good enough to eat . . . with very skimpy results. Last spring somebody trimmed and sprayed the trees. Presto! this fall we had our fill of good apples. (I won't disclose the exact spot.)

WILLIAM EISENMAN
Heyden Chemical Corp.
Princeton, N. J.

MEETINGS..

Manufacturing Chemists' Assn., second semi-annual meeting and conference, Hotel Statler, New York, N.Y., Nov. 25.

Society of Plastics Industry, Sheet and Coated Fabrics Division Conference, Commodore Hotel, New York, N.Y., Dec. 4-5.

American Institute of Chem. Engrs., annual meeting, Cleveland Hotel, Cleveland, O., Dec. 7-10.

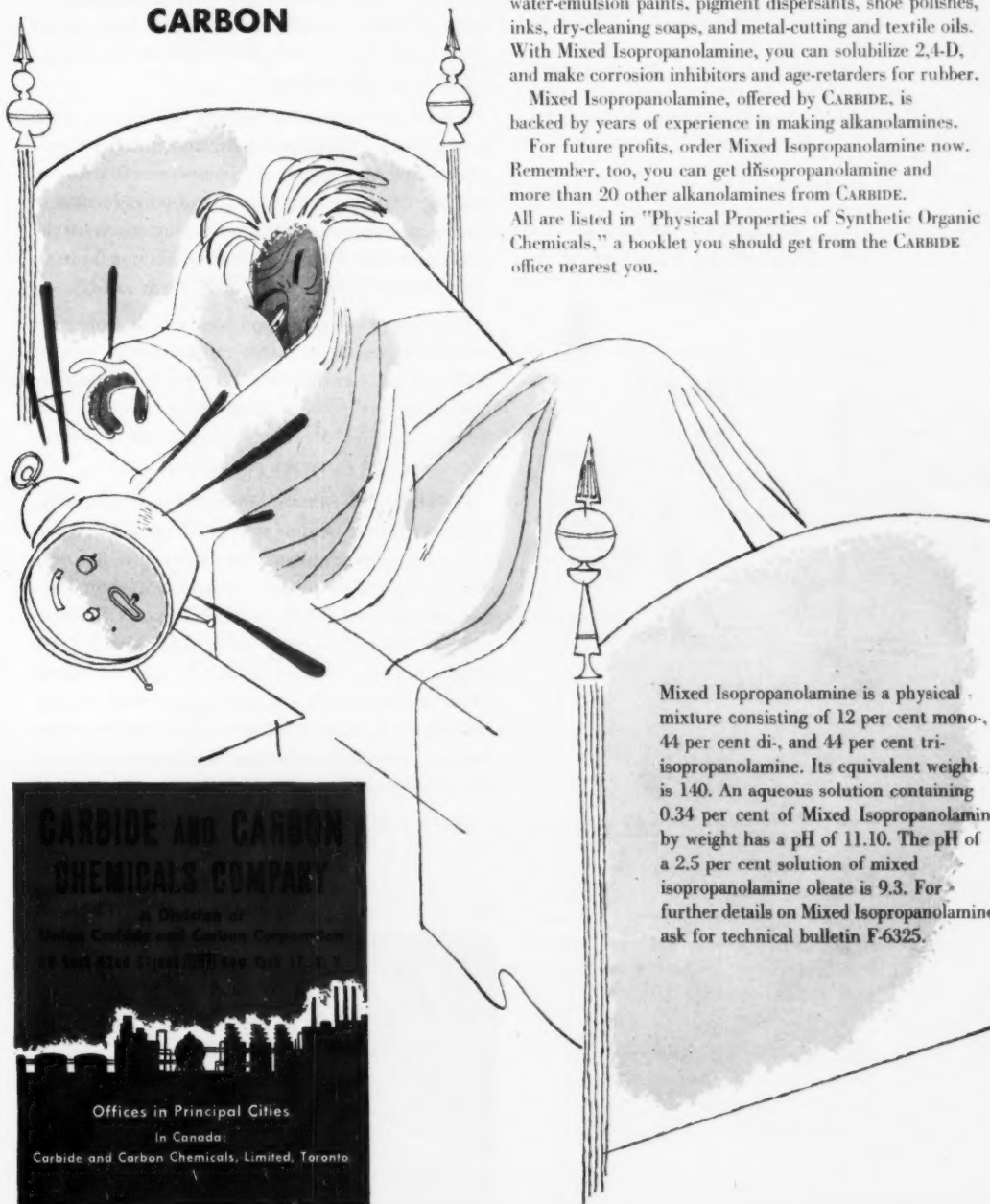
American Pharmaceutical Mfr.'s Assn., mid-year meeting, Waldorf-Astoria Hotel, New York, N.Y., Dec. 8-10.

Society of Cosmetic Chemists, semi-annual meeting, Biltmore Hotel, New York, N.Y., Dec. 11.

wake up demand with ...

MIXED ISOPROPANOLAMINE

from
CARBIDE
AND
CARBON



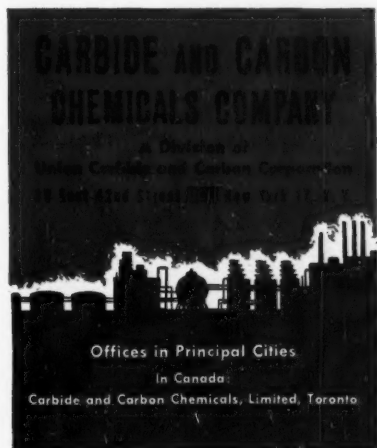
Mixed Isopropanolamine makes soaps that have excellent hydrocarbon-solubility and good color-stability. These soaps are efficient and economical when used in making water-emulsion paints, pigment dispersants, shoe polishes, inks, dry-cleaning soaps, and metal-cutting and textile oils. With Mixed Isopropanolamine, you can solubilize 2,4-D, and make corrosion inhibitors and age-retarders for rubber.

Mixed Isopropanolamine, offered by CARBIDE, is backed by years of experience in making alkanolamines.

For future profits, order Mixed Isopropanolamine now. Remember, too, you can get diisopropanolamine and more than 20 other alkanolamines from CARBIDE.

All are listed in "Physical Properties of Synthetic Organic Chemicals," a booklet you should get from the CARBIDE office nearest you.

Mixed Isopropanolamine is a physical mixture consisting of 12 per cent mono-, 44 per cent di-, and 44 per cent tri-isopropanolamine. Its equivalent weight is 140. An aqueous solution containing 0.34 per cent of Mixed Isopropanolamine by weight has a pH of 11.10. The pH of a 2.5 per cent solution of mixed isopropanolamine oleate is 9.3. For further details on Mixed Isopropanolamine, ask for technical bulletin F-6325.



18% less h.p. load with Farval lubrication

IN the manufacture of paper, as the wet pulp travels through the rolls of the Kamyr press, pressures run up to 2700 pounds per inch. Lubrication by hand is usually accompanied by a noticeable power drag. Lubricant is wasted and shutdowns for bearing repair invariably follow.

To insure continuous, uniform lubrication of its Kamyr press, a Canadian manufacturer installed Farval Centralized Lubrication. An immediate reduction of bearing friction brought a substantial reduction in power consumption. In fact, recording charts on the press show that when the Farval system was installed the horsepower load dropped as much as 18%.

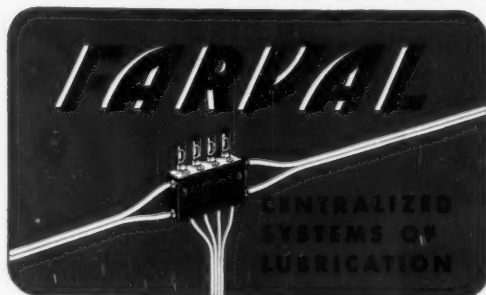
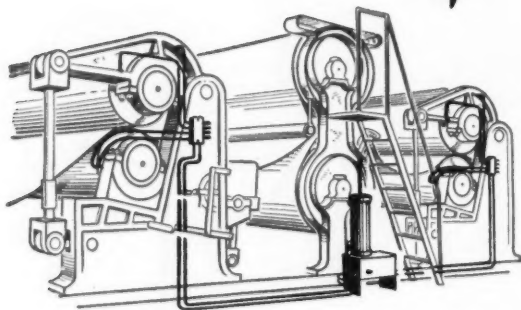
On these press rolls, as on hundreds of other rolls—calendar stacks in paper mills—rubber mills—steel and brass rolling mills—Farval has proved its ability to save power, oiling labor, lubricant and bearing expense. Most important of all, it reduces downtime and increases production.

Farval has proven itself in over 25 years of service. It is the original Dualine system of centralized lubrication that others imitate. The Farval valve has only 2 moving parts—is simple, sure and foolproof, without springs, ball-checks or pinhole ports to cause trouble. Through its wide valve ports, and full hydraulic operation, Farval unfailingly delivers grease or oil to each bearing—as much as you want, exactly measured—as often as desired. Indicators at every bearing show that each valve has functioned. For a full description, write for Bulletin No. 25.

The Farval Corporation, 3291 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.

**FARVAL—Studies in
Centralized Lubrication
No. 112**



NEWSLETTER

Advertising of synthetic fibers pays off—too well, according to Macy's Vice President Norman Tarnoff. Manufacturers put retailers in a spot, he claims, by creating public demand before productive capacity is large enough to satisfy it.

He also has words about incomplete or misleading labeling. When a consumer misuses a fabric because he hasn't been properly informed, it's not the manufacturer but the retailer who bears the brunt.

His proposals: honest labels, stable prices, instructive ads.

Honesty and instruction are also demanded by the Chicago Association of Commerce and Industry before it will reverse its stand against fluoridation of Chicago's municipal water supply. "We are impressed with the importance of specific questions asked by the opponents and as yet unanswered by the proponents," comments the Association in a report made public last week by its Public Improvements Committee.

Acknowledging proponents' arguments, and having heard testimony from various experts and organizations, the Association still holds eleven objections. They boil down to these: compulsion on everyone to be treated, on the basis of inadequate scientific knowledge, when other, individual measures to prevent tooth decay are available; inability to control ingestion of an admittedly toxic chemical, since fluorides also occur in spray residues; lack of data concerning fluoride's effect on adults, the aged, allergic individuals; lack of unanimity among doctors, dentists and researchers; higher water rates.

While Chicago was proposing, the U. S. was disposing. Now signed, sealed and delivered to Basic Management, Inc., is the wartime magnesium plant at Henderson, Nev., now occupied by some 50 private concerns, including National Lead, Stauffer Chemical, Western Electrochemical and U. S. Lime products. The tenant-owned corporation bought the plant from the state, which had previously bought it from the federal government.

Built at a cost of \$116 million, the plant was sold to the state for \$24 million. Even so, the government made out better than if it had been sold for salvage, as was originally thought inevitable.

Other firms, too, were actively acquiring and planning: Du Pont will build a \$10 million plant at Circleville, Ohio, to turn out Mylar polyester film—a strong, heat-resistant "cellophane"; Allied Chemical & Dye is considering this week a \$23 million synthetic fiber plant slated for Hopewell, Va.; Kaiser Aluminum & Chemical just put its fourth potline into operation at Chalmette, La.; Celanese's \$17 million petrochemicals plant at Pampa, Texas, came onstream—initial products: acetic acid and anhydride; and Titanium Metals Corp.'s Henderson, Nev., plant has now reached 4 tons-a-day capacity.

But the redcoats are coming! Distillers Co. Ltd., large British chemical maker, is conducting an intensive survey of chemical operations and opportunities on the whole North American continent. The company won't say, but it's pretty likely that an investment is contemplated.

A far cry from such practicalities is the current news from Soviet Russia. Caught with their dialectical trousers down, Soviet scientists were called upon by the head of their Academy of Sciences to abandon "obsolete and reactionary" theories, develop new ones on structure of matter, catalysis, petroleum and ore formation.

Further criticisms: in applied science, the Soviet scientists have often concentrated on secondary problems, neglected primary ones; and they've spent time on problems already solved elsewhere.

If the U. S. can't sell Russia any theories, it may be able in any event to sell Canada more chemicals. Canadian tariffs have been reduced on a number of raw materials. Among them:

- lube oil additives (not made in Canada)—from 20% to 10%;
- styrene-butadiene copolymer resins—from 7½% to free;
- aniline dye solutions from 20% to free.

Smog and drought are accentuating industry's problems in widely separated areas: Engineers' best calculations went awry in Oregon; they figured Crown Zellerbach's 66-million-gallon waste storage capacity would be ample for the longest conceivable drought, but now the company must discharge waste directly into the Willamette River, low as it is, or risk breaking the storage lagoon's dikes. Tennessee Valley is the driest in 65 years, and TVA power cutbacks have affected phosphorus production. Petroleum-based smog around Los Angeles, now severe for five straight weeks, is harming vegetable crops—spinach, lettuce, beets, broccoli, etc.

To be followed by pharmaceutical firms is the trial, scheduled for Dec. 1, of Colin Pharmacal Co., Inc. (Long Island City, N. Y.) on the charge of giving stock shares to physicians and druggists so that they would favor Colin products. Colin asked for an early trial as "the only way we can establish our innocence." Agreeing to a temporary injunction against stock deals while the trial is pending, the company nevertheless declares that "not one scintilla of evidence" supports the charge.

It looks as if the Office of Price Stabilization may commit suicide before it is killed. Its employees are looking for other jobs since they see the end approaching, and the latest move—setting up local price boards composed of consumers, businessmen and the public—is regarded as the last gasp of a dying agency. But don't expect Director Tighe Woods to liquidate the agency until he is forced to.

Beginning this week and probably running on through March, the government's antitrust suit in Chicago against Du Pont, General Motors and U. S. Rubber will be churning out facts, allegations and rulings that may affect the pattern of U. S. industry for years to come. Opening statements were made Tuesday; the government is now presenting its case; the defendants' turn at bat may not come until January.

Answering the government's charges of conspiracy (CW Newsletter, Nov. 1), U. S. Rubber's pre-trial brief says it is "squarely at issue" with the government on the latter's contention that Du Pont family members control U. S. Rubber.

GM's brief tsk-*tsk's* the government's attack "because it was necessary for the government to go back 150 years in order to weave its web of suspicion and surmise."

Both companies insist that all their business dealings with Du Pont have been "arm's-length transactions dictated by common business sense rather than by 'scheming'."

... The Editors

How porous *do you want your* catalyst supports?

Norton catalyst supports come in two types:

1. If your process calls for coated catalyst supports, you get what you want from Norton medium-porosity spheres. They have a porosity of 30-35%, with a rough, open surface structure. This gives you maximum adherence of catalyst to surface.

2. If you need supports for impregnation, Norton high-porosity spheres are your choice. Their porosity is 42-47% with large, connected, internal pores uniformly dispersed throughout the support. This gives you maximum deposition of catalyst.

You also have a choice of sizes and shapes. Norton spheres are available in diameters of $\frac{1}{8}$ " to 1". Other Norton catalyst supports, in ring and pellet form, available in diameters of $\frac{1}{8}$ " to 2".

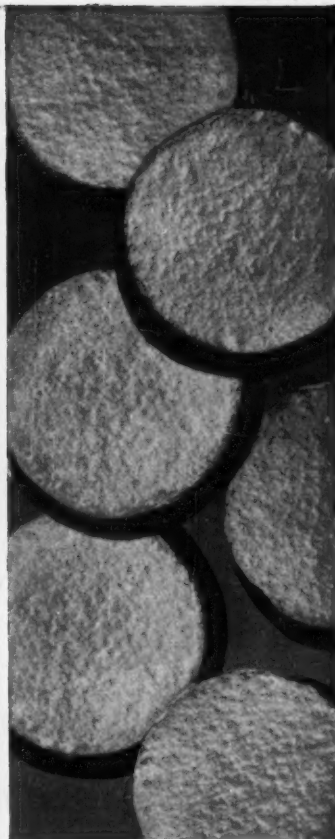
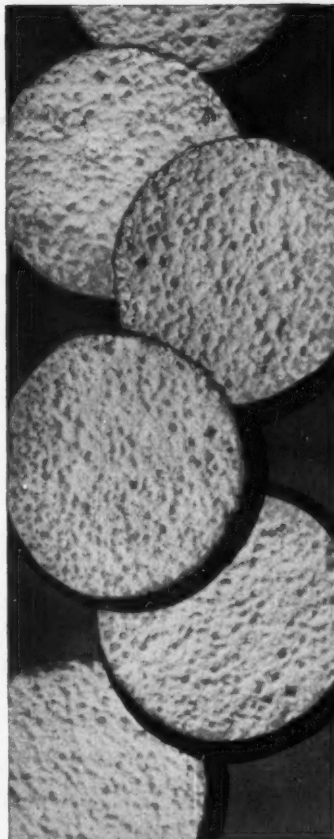
A choice of materials, too. Norton catalyst supports can be made from a variety of refractory materials, offering many different combinations of properties.

Test them in action

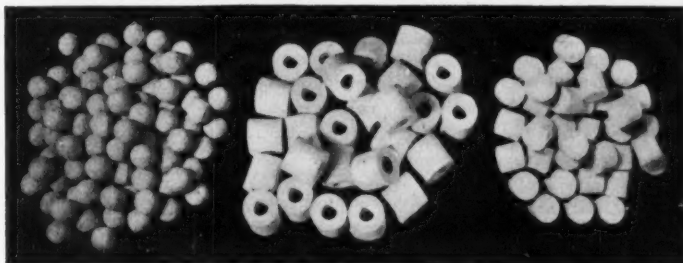
You can easily prove, in your own plant, what Norton catalyst supports can do towards improving your production. Want to see samples? Contact your Norton representative or write direct to Norton Company, 251 New Bond Street, Worcester 6, Mass. *Canadian Representative:* A. P. Green Fire Brick Co., Ltd., Toronto, Ont.

NORTON HEAT EXCHANGE PEBBLES

also offer you worthwhile advantages, especially where alternating oxidizing and reducing atmospheres are met. They're made of ALUNDUM* electrically fused alumina (alumina content 95% to 99%). Nothing like them for static or moving heat exchange beds.



Greatly enlarged views of cross-sections of the two types of Norton catalyst support spheres. *Left: Norton High-Porosity Spheres* have connected pores throughout. *Right: Norton Medium-Porosity Spheres* have pores close to surface. You can also get Norton Low-Porosity Spheres if required.



Norton catalyst supports are made in sphere, ring, and pellet form.

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

NORTON

Special REFRACTORIES

Making better products to make other products better

NORTON COMPANY, WORCESTER 6, MASSACHUSETTS

← 40 Miles to Erie, Pa.
62 Miles to Cleveland, Ohio →

NICKEL PLATE R.R. U.S. 20 N.Y. CENTRAL R.R.

413 ACRES

OHIO 531 LAKE ERIE

**FOR SALE
THIS CHOICE
PLANT SITE**

IN THE BEST LOCATION IN THE NATION

Hurry... Investigate this unusual opportunity TODAY!

IDEAL FOR CHEMICAL PRODUCERS and many types of general manufacturing, the 413-acre plant site shown above is available *now* at minimum cost.

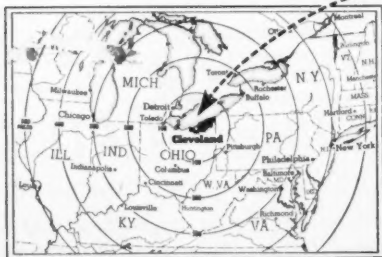
On Lake Erie's "Chemical Shore" Located between two major lake ports—Ashtabula and Conneaut, Ohio—within a few miles of America's fastest-growing center of industry, this plant site offers mainline rail and highway facilities... access to unlimited fresh water... soil conditions favorable for heavy structures.

Nearby Communities Ashtabula, four miles west, and Conneaut, 10 miles east, are easily accessible by automobile or municipal bus. Bus schedules can be arranged for plant employees.

Utilities Large power plant nearby, part of Cleveland Electric Illuminating Company's 1,144,000-kilowatt interconnected system. Natural gas available in area by December. Unlimited fresh water from Lake Erie. Sewage facilities must be installed.

Zoning and Taxes Site unzoned. Property taxes extremely low. The 1951 tax rate per \$100 valuation of property for Ashtabula Township, \$1.28; for North Kingsville, \$1.54.

A Rare Opportunity—Act Today For full information about this site and the opportunities for your company here, *phone, wire or write* Development Department, Richard L. DeChaut, Manager. All inquiries held in strict confidence.



Growth Industries Choose Northeast Ohio THE BEST LOCATION IN THE NATION... 85,000,000 customers within 500 miles... 3,500 manufacturer-suppliers right at hand.

**THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY**

83 PUBLIC SQUARE • CHerry 1-4200 • CLEVELAND 1, OHIO

BUSINESS & INDUSTRY



EXECUTIVES WITH PROBLEMS: Not so many, but just as big.

Executive Worries

In a survey of top company executives, CW finds tariffs, greater competition and taxes are the major worries.

Changes under the new administration, they feel, will be gradual; the principal effect, psychological.

Last week, CW's correspondents and editors throughout the country queried company presidents and executives on their major worries.

Their report: Executives don't have as many problems as they did during the rush of mobilization—but the ones they have left aren't going to be easily solved. Basically, there are three: tariffs and foreign competition, an increasingly competitive sales picture, and taxes.

The effect of the new administration on business will be more figurative than actual; but the atmosphere

of "let's get going" puts the large majority of businessmen into an optimistic mood.

As one man put it: "We hoped for an Eisenhower victory, but couldn't bring ourselves to plan on it."

Some executive worries concern specific branches of the chemical process industries. Rubber producers are speculating that government synthetic plants may finally be sold to private industry. Fatty acid producers wonder what the spurt of new ice cream substitutes (CW, Nov. 1) may do to the vegetable oil market. But

most worries are the same over a broad range of industries.

Tax Take-Off: On taxes, there are sighs of relief over the possibility of excess profits tax repeal. There is unanimous agreement with the sentiments of Dow's Leland Doan who says that because of EPT, "business has already passed the point of diminishing return, and now seems to be approaching a point of almost disappearing return upon efficiency and creativeness."

A Cleveland man feels that if the tax dies, companies won't have to feel that they must obtain a certificate of necessity before beginning any expansion.

A West Coast manufacturer thinks that expiration of EPT, and subsequent investment of retained earnings should go far toward allaying a recession in the latter half of 1953.

Another westerner, in commenting on possible business readjustments, looks to the phenomenal growth rate of the industry to quickly absorb any slack in the economy, easily within two years.

There seems to be no question that competition will be a great deal keener in 1953, with the possibility that relatively inefficient producers will be hard hit. Price controls, one Chicagoan states, "mean nothing to us. Our prices are well below our ceilings and they may go lower."

But while executives fear for lower prices on the products they sell, they aren't counting on lower cost of the things they buy. This is especially true of capital goods.

The increase in construction costs, they feel, has made expansion of well-known, standard chemicals unprofitable. This problem can't get better until the government faces up to the need for a realistic program covering plant replacement.

Why on Wages: Top management doesn't expect that its executive compensation problems will be easily solved. The new administration may have more a liberal policy on stock option plans, but—on income taxes, at least—higher income groups won't get a real break.

Some companies, of course, don't have this problem to the same degree. Monsanto, for example, had to rebuild its Texas City organization almost from scratch, following the disaster. And any company with new plant units coming into operation finds it

easy to move men to better paying and more responsible posts.

On the question of non-executive personnel, they feel that labor and industry will have to work out their own relations; government will be less important in the picture.

One Ohio Valley executive thinks the men and women in the plants will put "more emphasis on hard work rather than the something-for-nothing philosophy they've been sold for 20 years."

On labor contracts, a number of management men express a preference for multi-year pacts similar to the UAW-General Motors agreement.

Tare on Tariffs: Opinions on tariffs run the spectrum, depending, it seems, on how close to home foreign competition has struck. One company has been sweating over imports of two products from England, Germany and Holland, offered in the U. S. at a lower prices. The maker here cut its prices to meet the competition. But it can't cut any further and still make a profit.

But this company feels that to get a tariff raised, it would have to present a real case showing considerable damage to its business. "It will no longer," a company spokesman says, "be as simple to get tariffs raised as it has been in the past for some fields."

The export market for some items seems to have been virtually lost as new capacity comes onstream throughout the world. Germany and Japan are back as strong competitors in world markets—and they have the advantage of not wanting dollars for their output.

One fine chemical maker notes that the Japanese are providing his corporation some of its keenest competition.

"I guess," one interviewee says, "that you've got to look at both sides. We can't have high tariffs protecting our own market, and expect to sell our stuff abroad."

The president of a Midwest pharmaceutical house feels that the administration will lean toward the higher tariffs. "The Democrats were headed toward high tariffs, and since the Republicans are traditionally for high tariffs, it looks like the trend is a real one.

"We've done well on the export market, goodness knows, and we don't like competition here. But I'm far from sure that high tariffs are the right answer."

Only the most credulous businessmen expect panaceas from Washington. The rest know they'll have to solve or outflank their problems at home.



ARL's HASLER: On European soil, an apparatus beachhead.

Yanks Are Coming

While American manufacturers of more commonplace scientific instruments are being hurt by competition from abroad, a U.S. maker of spectrochemical equipment finds that he not only has little or no European competition here but actually has cause for optimism about a branch plant now being set up in Europe.

Applied Research Laboratories of Glendale, Calif., plans to open a branch factory in Lausanne, Switzerland, about Jan. 1. It will turn out production control apparatus, and M. F. Hasler, company president, says business on hand and in prospect is double the firm's original expectations.

The 3,000-square-foot plant will be staffed by 15 technicians, of whom all but the general manager will be hired in Switzerland. Material for the highly specialized testing equipment also will be obtained in Europe whenever possible, Hasler says. This is expected to speed production and permit faster servicing of existing installations. ARL's present staff of field engineers will service equipment now in use on the European continent.

Products will be the concern's regular line of Quantometers, spectrographs, source units and related accessories. Leading item is a Quantometer that can analyze in less than two minutes 11 elements in alloys and other inorganic materials.

ARL's trans-Atlantic expansion bears out the prophecy (*CW*, Jan. 26) that although U.S. instrument makers are being squeezed out of the manufacture of bread-and-butter items like microscopes and cover glasses, they'll

be relatively safe in making electronic equipment and special high-grade apparatus. And by locating its branch plant in Europe, ARL will reap the economy of lower foreign wages.

EXPANSION. . . .

Butyl Rubber: Goodrich-Gulf Chemicals, Inc., will build its first plant at Orange, Tex. It will make butyl rubber under Esso patents.

Coal Tar: U.S. Steel has awarded Wilputte Coke Oven Division of Allied Chemical & Dye the contract for designing and erecting two coke-oven batteries of 77 ovens each at Gary Steel Works, Gary, Ind.

Sulfur: Gulf Sulphur Corp. has discovered a fourth Frasch-mineable sulfur deposit on its Mexican properties.

Polyacrylates: B. F. Goodrich Chemical Co. has expanded plant facilities for the volume production of sodium polyacrylates, used in soil conditioners.

Carbon Dioxide: Fulton Petroleum Co. subsidiary of Carbon Dioxide and Chemical Co., plans a new dry ice plant and general expansion of east central Utah operations. Planned for 1953, the new plant will be located at Wellington, Carbon County.

COMPANIES. . . .

Institutional investors will finance expansion programs of two companies:

• **Reynolds Metals Co.** will borrow \$76.7 million to complete financing of its post-Korea aluminum expansion program. Through its subsidiary, Reynolds Reduction Co., \$45.7 million in bonds will be sold to nine insurance companies, and \$31 million will be borrowed from 10 banks. Proceeds will complete aluminum and alumina producing facilities at Corpus Christi, Tex., and will finance an aluminum plant at Arkadelphia, Ark. Aluminum-making capacity will be 414,500 tons/year at peak production, expected late in 1953.

• **Newport Industries, Inc.**, has set up a \$6 million credit to finance plant expansion. About \$1.6 million goes to retire outstanding notes and the remainder will help build a new oil refining plant at Bay Minette, Ala., and expand research operations at Pensacola, Fla.

• **W. R. Grace & Co.** will ask stockholders December 1 to increase voting rights of common stock. An application to list the common stock on the New York Stock Exchange is being prepared.

Write-off Roundup

Herewith, CW presents another summary of fast tax write-off certificates approved by the Defense Production Administration.

Included are the write-offs approved since March, when CW previously charted certificates (CW, Mar. 8, 15). The first certificates granted were summarized on August 4, 1951.

The new listings reflect a number of product groups not represented earlier. DPA, in order to approve expansions, set up formal goals for such large (and important) materials as fertilizers and plastics. A good share of the new certificates went to producers of such items.

The length of certificate lists now being approved by DPA each week is considerably below earlier ones. And with most expansion goals filled, new write-offs will generally reflect newly-set goals.

CPI Scores High

Of the ten best managed companies in the entire country, four are in the chemical process industries.

Moreover, nearly 25 percent of all 317 companies to merit an excellence rating for management are in the chemical process field. These bouquets come directly from the American Institute of Management's Fourth Quarterly Report of Excellently Managed Companies, published this week. The Institute, a non-profit foundation for the advancement of management, makes comparative audits of some 3,000 companies each year, of which only some 10% meet its standards for excellence.

Based on a point system of 10,000 maximum (7,500 to rate excellent) only ten companies score over 9,000. Among these are the four chemical process companies, Procter & Gamble, Du Pont, Minnesota Mining & Manufacturing Co., and B. F. Goodrich.

Icing on the cake is the fact that P&G and Du Pont finished one-two in the ratings. Named the best managed company in the country (CW, Feb. 23), P&G is "far ahead of its closest competitor." And that closest competitor is Du Pont, itself far ahead of the third-place, non-chemical, company.

All Around Excellence: An AIM audit involves analysis of a management according to ten categories.*

*Economic function, corporate structure, health of earnings growth, fairness to stock-owners, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor, and executive evaluation.

OXYGEN, HYDROGEN, OTHER GASES

Company, Location	Product	Amount Certified	% Certified
Air Products, Walkerton, Ind.	Acetylene	113,000	50
Air Reduction, Milwaukee, Wis.	Argon	26,352	60
Air Reduction, Los Angeles, Calif.	Argon	23,754	60
Air Reduction, Emeryville, Calif.	Argon	79,064	60
Air Reduction, Vernon, Calif.	Argon	79,064	60
Air Reduction, Lorain, Ohio	Argon	18,165	60
Air Reduction, Chicago, Ill.	Argon	107,410	60
Diamond Alkali, Houston, Tex.	Hydrogen	194,490	65
National Cylinder Gas, Babberton, Ohio	Hydrogen	194,971	55
Stuart Oxygen, San Francisco, Cal.	Hydrogen	22,000	60
Air Products, Bergen County, N.J.	Oxygen, acetylene	57,797	45
Air Products, Iselin, N.J.	Oxygen, acetylene	12,602	45
Air Products, Emmaus, Pa.	Oxygen, acetylene	21,940	45
Air Products of W.Va., Parkersburg, W.Va.	Oxygen, acetylene	4,931	45
Air Products, Walkerton, Ind.	Oxygen, acetylene	6,501	45
Air Products, Iselin, N.J.	Oxygen	19,282	45, 50
Air Products of W.Va., Parkersburg, W.Va.	Oxygen	5,976	45, 50
Air Products, Walkerton, Ind.	Oxygen	10,400	45
Air Products, Weirton, W.Va.	Oxygen	114,364	60
Air Products of W.Va., Parkersburg, W.Va.	Oxygen	12,042	45
Acetogen Gas Co., Detroit, Mich.	Oxygen	79,167	45
Air Reduction Co., Bethlehem, Pa.	Oxygen	286,327	60
Air Reduction, Chicago, Ill.	Liquid oxygen, argon, nitrogen	4,374,170	50
Air Reduction Co., Lorain, Ohio	Oxygen	308,100	60
Air Reduction Co., Philadelphia	Liquid oxygen, nitrogen and argon	8,452,520	50
Air Reduction, Shreveport, La.	Oxygen	66,110	60
Alaska Chemical, Fairbanks, Alaska	Acetylene, oxygen	75,000	45
Burdett Oxygen of Cleveland, at Youngstown, Ohio	Oxygen, argon, nitrogen	496,550	50
Burdett Oxygen Co. of Cleveland, Huntington Park, Calif.	Oxygen	100,250	50
Firth Sterling Steel & Carbide, McKeesport, Pa.	Oxygen	370,000	55
Home Oxygen, Billings, Mont.	Oxygen	182,367	50
Industrial Air Products, Pascagoula, Miss.	Oxygen, nitrogen	207,668	55
Inland Oxy-Acetylene, Spokane, Wash.	Oxygen	63,465	45
Marks Oxygen, Augusta, Ga.	Oxygen, acetylene	178,000	50
National Cylinder Gas, Chicago, Ill.	Oxygen	1,492,500	55
National Cylinder Gas, Sterling, Ill.	Oxygen	173,114	60
National Cylinder Gas, near Pittsburgh, Pa.	Liquid oxygen	926,250	35
Union Carbide & Carbon, Houston, Tex.	Oxygen, nitrogen	681,200	50
Union Carbide & Carbon, Los Angeles, Calif.	Oxygen, nitrogen	1,704,082	55

CARBON BLACK

Pittsburgh Coke & Chemical, Pittsburgh, Pa.	Activated charcoal	445,000	75
Cabot Carbon, Bayou Sale, La.	Carbon black	370,650	50
Cabot Carbon, St. Mary parish (county), La.	Carbon black	1,847,080	50
Cabot Carbon, Centerville, La.	Carbon black	1,097,475	50
Columbian Carbon, Conroe, Texas	Carbon black	395,000	50
Continental Carbon, near Sunray, Tex.	Carbon black	185,000	50
Continental Carbon, near Hobbs, N.M.	Carbon black	1,010,500	50
Continental Oil Black, Westlake, La.	Carbon black	1,646,500	50
United Carbon, St. Mary parish, La.	Carbon black	2,655,500	50
United Carbon, near Wheeler, Tex.	Carbon black	1,907,500	50
Phillips Chemical, Borger, Tex.	Carbon black	2,395,900	50
Thermatomic Carbon, Sterlington, La.	Carbon black	479,500	50
		985,110	50
		198,500	50

CHLORINE, CAUSTIC SODA, SODA ASH

Allied Chemical & Dye, Syracuse, N.Y.	Chlorine	2,600,000	40
Central Chemical Corp. of Lebanon, Lebanon, Pa.	Chlorine, caustic soda	397,000	45
Diamond Alkali, Pine Bluff, Ark.	Chlorine, caustic soda	200,000	70
		114,865	45
Dolomite Reduction Corp., Ada, Okla.	Chlorine	7,045,960	45
		5,495,100	30

COKE, COAL TAR

Allied Chemical & Dye, Tonawanda, N.Y.	Coal tar chemicals	375,000	50
Allied Chemical & Dye, Youngstown, Ohio	Coal tar chemicals	1,516,000	60
Koppers, Follansbee, W.Va.	Coal tar products	207,000	60
Allied Chemical & Dye, Samet Solvay div., Ironton, Ohio	Coke	1,325,000	50
American Steel & Wire, Duluth, Minn.	Coke, coal chemicals	7,280,000	50
American Steel & Wire of N.J., Cleveland, Ohio	Coke, coal chemicals	1,450,000	45
Bethlehem Steel, Baltimore City, Md.	Coke, coal chemicals	6,326,000	45
Kemmerer Coal, Lincoln County, Wyo.	Coke, coal chemicals	159,200	85
Moss Iron, Trafford, Ala.	Coke, coal chemicals	227,638	85
U. S. Steel, Clairton, Pa.	Coke, coal chemicals	12,570,000	45
	Coke, coal chemicals	559,200	85
U. S. Steel, Fairfield, Ala.	Coke, coal chemicals	5,330,000	45
U. S. Steel, Cleveland, Ohio	Coke, coal chemicals	1,700,000	45
U. S. Steel, Kaiser Steel, around Columbia, Utah	Coke, coal chemicals	545,500	50
Wheeling Steel, Follansbee, W.Va.	Coke, coal chemicals	5,210,500	45
Alabama By-Products Corp., Tarrant, Ala.	Metallurgical coke	1,177,800	50
Allied Chemical & Dye, Kingston, W.Va.	Metallurgical coke	5,420,000	50
Great Lakes Carbon, St. Louis, Mo.	Metallurgical coke	10,505,000	55
U. S. Steel, Clairton, Pa.	Metallurgical coke	20,888,539	25
U. S. Steel, Gary, Ind.	Metallurgical coke	14,192,000	45
Pittsburgh Steel, Monessen, Pa.	Metallurgical coke, coal chemicals	11,240,000	85
U. S. Steel, Lorain, Ohio	Metallurgical coke, coal chemicals	6,303,000	50

While each of the four chemical companies has its outstanding features, AIM draws attention to the fact that the chemical companies show more all-around excellence than the other six companies rating over 9,000 points.

The only company of the entire 3,000-odd studied to make a perfect score for executive evaluation—the most important category—was Procter & Gamble. So good is P&G's management team that AIM holds it up as a lesson for all other companies. P&G has the best program for the selection of new executives, the best training methods, and the finest development system for employees, rhapsodizes AIM. The company scrupulously avoids such practices as nepotism or favoritism in any form. Most significant, AIM claims, is the fact that the company promptly relieves anyone in an administrative position who fails to measure up to his job.

Tops On Four: Although ranking only second in total score, Du Pont outrates P&G in four of the ten categories: corporate structure, health of earnings growth, research and development, and fiscal policies. In the latter category, says AIM, Du Pont bows to no other company, and has made its most enduring mark on good management in this country. The company's research and development and health of earnings excellence call for no elaboration, says the Institute. In general, AIM points out, Du Pont's effect on the whole theory of management in this country has been extensive, and it is to be expected that the company's corporate structure would be excellent.

With the possible exception of a poorly balanced board of directors, AIM considers that Minnesota Mining & Manufacturing Co. has no area of weak management. As 3M's greatest strength, however, AIM points to the practical aspects of its research, and the great number of products brought successfully to market. Applied research and product development must be considered 3M's strongest points. But, AIM adds, the company's noted training courses for employees and its remarkable sales aggressiveness should not be overlooked.

Goodrich, more than any other of the "top-ten" companies, concedes AIM, is an "all-around" company. It is almost impossible to pick out a single area of special excellence in this company which is "super" excellent everywhere.

Chemical Still Tops: As if to underscore the earlier statement of its president (CW, Feb. 23) that within the chemical process industries are the

DPA Certificate Summary (cont.)

FERTILIZERS, AMMONIA, PHOSPHORUS

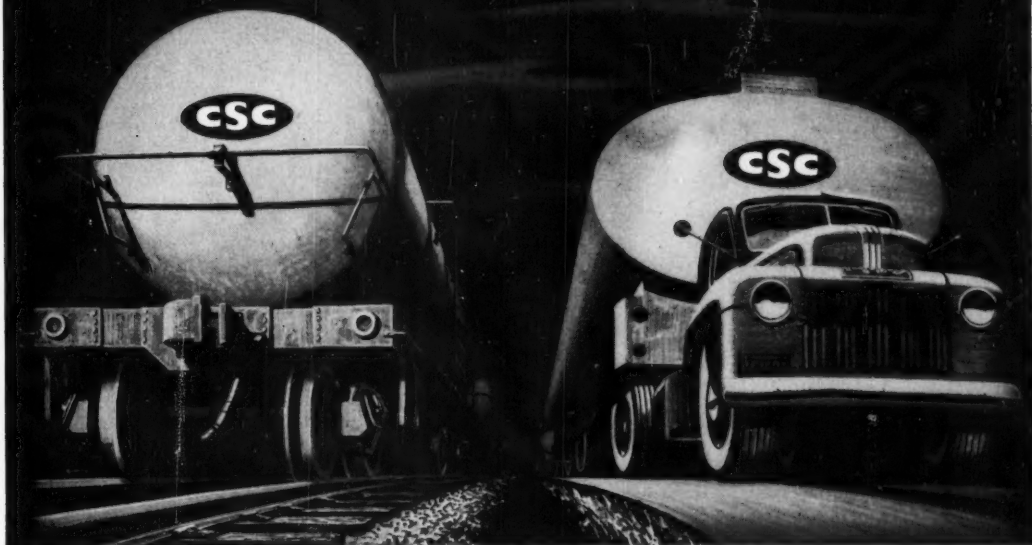
Company, Location	Product	Amount Certified	% Certified
Union Oil, Wilmington, Calif.	Ammonia	5,000,000	45
Rohm & Haas, Philadelphia, Pa.	Ammonium sulphate	213,878	45
Interlake Iron, Chicago, Ill.	Ammonium sulphate	544,300	45
Lion Oil, El Dorado, Ark.	Ammonia	260,065	55
Cities Service, St. Louis, Mo.	Ammonia	5,000,000	45
Phillips Chemical, Pasadena, Tex.	Ammonium sulfate	1,468,000	45
Filtrol Corp., Vernon, Calif.	Ammonium sulfate	3,715,908	55
Hoacac Valley Lime, Adams, Mass.	Dicalcium phosphate	254,109	40
Monsanto Chemical, Trenton, Mich.	Dicalcium phosphate	318,000	45
Shea Chemical, Columbia, Tenn.	Elemental phosphorus, dicalcium phosphate	2,054,530	45
		381,684	40
Allied Chemical & Dye, South Point, Ohio	Fertilizer	5,994,500	75
Phillips Chemical, Pasadena, Tex.	Fertilizer	3,086,050	45
Chemical Warehousing, Oklahoma City, Okla.	Fertilizer	245,000	45
Spencer Chemical, Pittsburg, Kans.	Nitric acid, ammonium nitrate	1,695,000	45
Spencer Chemical, Henderson, Ky.	Nitric acid, ammonium nitrate	400,000	45
Mississippi Chemical, Yazoo City, Miss.	Nitric acid, ammonium nitrate	2,856,550	45
Phillips Chemical, Moore County, Tex.	Nitric acid	1,684,000	45
National Chemical, Yazoo City, Miss.	Nitrogen fertilizer	7,212,446	45
Sid Richardson Gasoline, Pointe-a-la-Hache, La.	Nitrogen fertilizer	19,000,000	45
W. R. Grace, Memphis, Tenn.	Nitrogen fertilizer	15,466,000	45
Delta Chemical, Buras, La.	Nitrogen fertilizer	8,892,000	45
Pacific Chemical, Franklin County, Wash.	Nitrogen fertilizer	5,735,000	45
Allied Chemical & Dye, Syracuse, N.Y.	Nitrogen fertilizer	24,450,000	45
Northern Chemical Industries, Sandy Point, Me.	Nitrophosphate fertilizers	1,395,443	65
Gulf Improvement, Pascagoula, Miss.	Nitrophosphate fertilizer	7,338,750	80
		7,361,250	45
Tennessee Corp., U. S. Phosphoric Products Div., East Tampa, Fla.	Phosphate fertilizer	1,396,000	45
Stauffer Chemical, Tacoma, Wash.	Phosphate fertilizer	320,000	45
Missouri Farmers Assn., Galena, Kans.	Phosphate fertilizers	3,233,330	45
Western Phosphates, Tooele County, Utah	Phosphate fertilizers	3,072,000	45
Thurston Chemical, Atlas, Mo.	Phosphate fertilizers	830,000	75
		1,065,500	45
Federal Chemical, Danville, Ill.	Phosphate fertilizers	389,518	45
Tennessee Corp., East Tampa, Fla.	Phosphate fertilizers	275,440	45
Simplot Fertilizer, Pocatello, Ida.	Phosphate fertilizer	1,022,752	45
Coronet Phosphate, Tenoroc Mine, Fla.	Phosphate rock	850,313	50
Virginia-Carolina, Nichols, Fla.	Phosphate rock	1,646,981	25
		300,745	65
Brunswick-Balke-Collender, Muskegon, Mich.	Phosphate rock	174,838	50
International Minerals & Chemical, Polk County, Fla.	Phosphate rock	8,918,340	50
Armour & Co., Bartown, Fla.	Phosphate rock	5,608,000	45
Smith-Douglass, Livingston County, Ill.	Phosphoric acid	439,000	45
Virginia-Carolina, Nichols, Fla.	Phosphate fertilizers	4,500,000	45
Matheson Chemical, Pasadena, Tex.	Phosphate fertilizers	1,811,292	45
Best Fertilizers, Lathrop, Cal.	Phosphate fertilizers	471,000	45
Southwest Fertilizer & Chemical, El Paso, Tex.	Phosphate fertilizers	290,638	45
American Agricultural Chemical, Pierce, Fla.	Phosphorus	875	45
Allied Chemical & Dye, Lawrence County, O.	Urea	4,200,000	45
American Cyanamid, Avondale, La.	Urea	7,500,000	45

CYCLIC ORGANICS

Dow Chemical, Freeport, Tex.	Benzene	1,100,000	90
Eastern States Chemical, Houston, Texas	Benzene	554,097	90
Koppers Company, Kobato, Pa.	Benzene and homologues	181,027	90
Old Dutch Refining, Muskegon, Michigan	Benzene, toluene	326,100	40
Shell Oil, Wilmington, Calif.	Benzene	100,000	90
Universal Oil, Mooringsport, La.	Benzene, toluene comps.	594,000	75
Union Oil of Calif., Wilmington, Calif.	Benzene, toluene	2,950,000	45
		6,663,000	65
		2,387,000	90
Stoess-Sheffield Steel, Birmingham, Ala.	Benzene	73,170	90
Monsanto Chemical, St. Louis, Mo.	Benzoic acid	262,500	50
Monsanto, Anniston, Ala.	Biphenyl, Aroclor	571,000	90
Phillips Petroleum Co., Phillips, Tex.	Cyclohexane	136,210	90
		8,250	40
Phillips Petroleum, Phillips, Tex.	Cyclohexane concentrate	371,000	65
Phillips Petroleum, Borger, Tex.	Cyclohexane	1,230,990	90
Salt Lake Refining, Salt Lake City, Utah	Cumene for phenol	325,090	45
		1,358,000	50
		402,000	40
		4,605,000	50
Du Pont, Gibbstown, N. J.	Diphenylamine	204,000	50
	Aniline	107,000	60
Quaker Oats, Memphis, Tenn.	Furfuryl alcohol	546,250	50
Gamma Chemical, Great Meadows, N. J.	Hydroxyquinoline	74,884	60
Allied Chemical & Dye, Marcus Hook, Pa.	Lindane	351,000	45
Hooker Electrochemical, Niagara Falls, N. Y.	Lindane	411,700	45
Kolker Chemical Div., Diamond Alkali, Houston, Texas	Lindane	891,688	45
Tennessee Products & Chem., Chattanooga, Tenn.	Lindane, trichlorobenzene	217,132	45
Ethyl Corp., Baton Rouge, La.	Lindane	2,815,000	45
American Cyanamid, Willow Island, W. Va.	Melamine	2,474,000	45
American Cyanamid, Willow Island, W. Va.	Melamine	615,000	45
Phillips Chemical, Pasadena, Tex.	2-Methyl-5-vinyl pyridine	3,119,000	45
American Cyanamid, Bound Brook, N. J.	Mononitrobenzene	500,000	40
Koppers Co., Inc., Fallonsbee, W. Va.	Crude naphthalene	267,000	60
Allied Chemical & Dye Corp., Detroit, Mich.	Naphthalene	1,012,000	60
Koppers Co., Inc., Fontana, Calif.	Naphthalene	2,425,800	60
Koppers, Fallonsbee, W. Va.	Naphthalene	363,000	50

CSC ETHYL ALCOHOLS and DERIVATIVES

...Ready to Roll from Coast to Coast



Usage for industrial alcohols has reached an unparalleled level during the past decade . . . creating a demand that Commercial Solvents Corporation, a pioneer in alcohol research and production, has answered by producing more ethyl alcohols and derivatives for the chemical industry.

Over the supply lines of America move the CSC fleet of tank cars and tank trucks, bringing these essential chemicals to industry from its nationwide network of strategically located plants and distribution points...ready to offer you unsurpassed service.

CSC ethyl alcohols are available in all formulas and grades to meet the most exacting requirements of the pharmaceutical and industrial trades.

ALCOHOLS

Rossville Hexagon® Cologne Spirits
Rossville Algrain® Alcohol U.S.P.
Rossville Gold Shield® U.S.P.
Shellacol®

Quixol®

Quakersol®

DERIVATIVES

Ethyl Acetate • Diethyl Maleate • Acetaldehyde

Write or phone Commercial Solvents Corporation, Industrial Chemicals Division, 260 Madison Ave., New York 16, N. Y. for full information.

OTHER CSC CHEMICALS

Butanol	Aminohydroxy Compounds
Butyl Lactate	Riboflavin Crystals
Butyl Acetate	Hydroxylammonium Salts
Butyl Stearate	Nitroparaffins
Dibutyl Phthalate	Formaldehyde N.F.
Tributyl Phosphate	Pentaerythritol
Methanol	Acetone
Ammonia	Methylamines

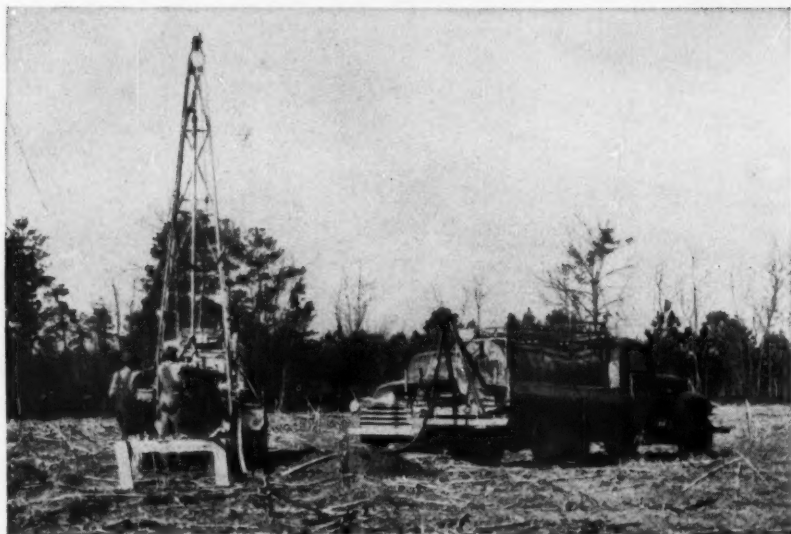
INDUSTRIAL CHEMICALS DIVISION

CSC COMMERCIAL SOLVENTS CORPORATION

ALDEHYDES • ALCOHOLS • ESTERS • AMINES • AMINOALCOHOLS
AMMONIA • NITROPARAFFINS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

November 22, 1952 • Chemical Week

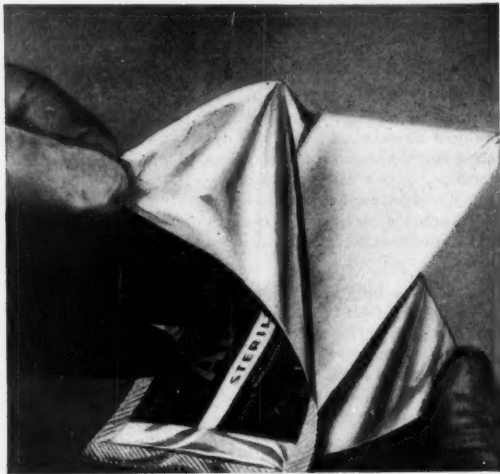
Life ...on the



CYANAMID DEVELOPS NEW BAUXITE FIELDS and expands production of Aluminum Sulfate for use in paper mills, water works, sewage plants, tanneries, soap and ink making. As old bauxite fields are depleted, Cyanamid crews are continually making test drillings in new fields to see whether mining operations are feasible. New fields are located by intensive geologic surveys and are developed for mining when ore samples prove to be of proper chemical grades and value. Cyanamid-mined bauxite is made into Aluminum Sulfate at Cyanamid plants in New Jersey, Tennessee, South Carolina, Alabama, Ohio and Michigan.



AEROLUBE® 92, NEW CYANAMID LUBRICATING OIL ADDITIVE, has been specifically designed for use in Series 2 oils. These oils are recommended wherever fuels with high sulfur content are used, such as in Diesel tractors, or in high-output supercharged engines. AEROLUBE 92 combines oil antioxidant and bearing corrosion inhibition properties with highly effective alkaline detergency. Oils compounded with AEROLUBE 92 meet the recognized standards of low corrosivity to silver bearings.



NEW RELIEF FOR SUFFERERS from burns and other surface wounds now comes with the development of Aureomycin Packing and Aureomycin Dressing for topical application by Davis & Geck, Inc., a unit of Cyanamid. The new D&G antibiotic dressings and packings, now being used by surgeons and physicians to help promote faster healing and prevent infection, are an important advance in wound therapy and another example of the widespread use and importance of Aureomycin in combating infection and disease.

Chemical Newsfront



A NEW DAY IN TEXTILES is dawning with the introduction of newer synthetic fibers that rival silk for softness, wool for warmth, —yet are moth- and mildew-proof, resistant to shrinkage, sunlight, salt air and chemical fumes. Key chemical used in the production of many of these newer synthetics is AERO* Acrylonitrile, produced by American Cyanamid, which is also developing a new acrylic fiber of its own. *Trade-mark



NEW ARMY UTILITY BOAT IS LIGHTER, FASTER, STRONGER than wooden boat. Molded of Fiberglass-reinforced LAMINAC® Resin, the boat showed great all-over strength and ruggedness during punishing tests. Damages made during tests were easily repaired by unskilled personnel. Low displacement of lightweight boat gives 30% greater capacity than wooden model. LAMINAC, Cyanamid's versatile laminating resin, continues to be used in new and valuable ways by the plastics industry.

American Cyanamid Company
30 Rockefeller Plaza, New York 20, N. Y.

CW, 11-42

Please send me literature or further data on the items checked:

- ... Aluminum Sulfate
- ... LAMINAC Resins
- ... AEROLUBE 92 Additive
- ... AERO Acrylonitrile

In Canada: North American Cyanamid Limited,
Toronto and Montreal

AMERICAN Cyanamid COMPANY

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.

PROTECTION



Tough—like an alligator's hide! **Fulton's W.P.P.L. (Waterproof Paper Lined) Bags** protect your product against the detrimental effects of moisture and odors—an economical, easy-to-handle textile bag built to do the job of a more costly rigid container. Your product is fully protected with an inner lining of plastic or crinkled Kraft paper laminated with special adhesives to either cotton or burlap which safely, surely seals in your product . . . nothing gets in—or out! For full details, write your nearest Fulton factory today!

Call on Fulton too, for Polyethylene and Pliofilm Bags, and for Polyethylene Barrel Liners

Fulton BAG & COTTON MILLS

Atlanta
St. Louis
Dallas
Kansas City, Kans.
Los Angeles
Minneapolis
New York City
Denver
New Orleans

DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Reilly Tar & Chemical, Cleveland, Ohio	Naphthalene	903,415	60
Reilly Tar & Chemical, Granite City, Ill.	Crude naphthalene	110,880	60
United States Steel, Clairton, Pa.	Naphthalene	1,200,000	60
United States Steel, Gary, Ind.	Naphthalene	3,817,000	60
Tennessee Coal, Iron & Railroad, Birmingham, Ala.	Naphthalene	1,150,000	60
Jefferson Chemical, Port Neches, Tex.	Nonyl phenol	280,500	40
Monsanto Chemical, Monsanto, Ill.	Parachlorophenol	290,000	60
Heyden Chemical, Garfield, N.J.	Pentaerythritol	1,207,465	65
Standard Oil of Cal., San Francisco, Cal.	Phenol	723,000	45
Hercules Powder, Paulsboro, N.J.	Phenol	8,500,000	50
Koppers Pittsburgh, Kobuta, Pa.	Phthalic Anhydride	4,000,000	50
American Cyanamid, Bridgeville, Pa.	Phthalic anhydride	6,165,000	30
Monsanto, St. Louis, Mo.	Phthalyl chloride	310,000	45
Reilly Tar & Chemical, Indianapolis, Ind.	Crude pyridine	506,328	50
Heyden Chemical, Garfield, N.J.	Resorcinol	397,710	65
Dow Chemical Co., Midland, Mich.	Salicylic acid	1,034,000	55
Pathfinder Chemical, Point Pleasant, W. Va.	Styrene	11,496,320	60
Dow Chemical, Freeport, Tex.	Styrene	9,400,000	60
Dow Chemical, Midland, Mich.	Styrene	3,250,000	60
Pennsylvania Industrial Chemical, Jefferson, Pa.	Styrene	3,807,650	50
Carbide & Carbon Chemical, Kanawha County, W. Va.	Styrene	1,081,700	60
Marbon Corp., Gary, Ind.	Styrene	70,045	60
Monsanto Chemical, Long Beach, Calif.	Styrene	133,120	45
Dow Chemical, Torrance, Calif.	Styrene	1,723,000	45
Monsanto Chemical, Springfield, Mass.	Styrene	87,565	45
Foster Grant, Port Arthur, Tex.	Styrene monomer	4,284,450	60
Goodyear Tire & Rubber, Akron, Ohio	Styrene	1,762,000	45
Monsanto Chemical, Addyston, Ohio	Styrene	3,673,270	45
Monsanto Chemical, Springfield, Mass.	Styrene	157,915	45
Catalin Corp. of America, Fords, N.J.	Styrene	628,210	45
Dow Chemical, Midland, Mich.	Styrene	182,280	60
Hooker Electrochemical, Niagara Falls, N. Y.	Trichloro-benzene	470,500	45
Calbia Chemicals, Lake County, Ohio	n-Trichloromethylthiotetrahydrophthalimide	800,000	45
Monsanto Chemical, Anniston, Ala.	Toluene diisocyanate	211,000	70
PLASTICS, RESINS, POLYMERS, PLASTICIZERS			
American Aniline & Extract, Philadelphia, Pa.	Acrylic nylon size	\$ 84,262	50
Carter Oil, Billings, Mont.	Butylene-propylene polymer	845,000	65
Hercules Powder, Partin, N. J.	Chemicals	1,420,000	40
	Cellulose acetate flake	2,024,179	45
	Cellulose acetate mold-ing powder	409,412	45
Strux Corp., Lindenhurst, N. Y.	Cellulose acetate	123,168	60
Tennessee Eastman, Kingsport, Tenn.	Cellulose esters	4,485,000	45
Shell Chemical, Houston, Tex.	Epoxy resins	1,135,426	45
		4,063,000	50
		472,900	45
		226,100	15
Union Carbide, Institute, W. Va.	Ethyl acrylate, ammonium sulfate	476,000	45
Hercules Powder, Hopewell, Va.	Ethyl cellulose	315,865	45
Esso Standard Oil, Linden, N. J.	Isobutylene, polybutene, lubricating oil additives	6,480,950	65
		1,148,150	45
American Cyanamid, Wallingford, Conn.	Melamine resins	803,161	45
American Cyanamid, Wallingford, Conn.	Melamine resins	77,963	45
Jefferson Chemical, Port Neches, Tex.	Metal phenolates	751,800	65
		248,200	45
Rohm & Haas, Deer Park, Tex.	Hydrogen cyanide	1,113,576	80
	Ethyl, methyl methacrylates	7,465,734	40
Rohm & Haas, Bristol, Pa.	Methyl methacrylate	4,791,703	80
Hercules Powder, Hopewell, Va.	Methyl methacrylate	1,263,449	80
	Nitrocellulose	535,000	55
Allied Chemical, location undisclosed	Nitrocellulose products	781,260	55
Du Pont, Seaford, Del.	Nylon yarn	23,165,000	40
Du Pont, Martinsville, Va.	Nylon yarn	6,653,000	40
Durez Plastics & Chemicals, North Tonawanda, N. Y.	Nylon yarn	13,764,000	40
Catalin Corp., Fords, N.J.	Phenolic resins	3,346,700	45
Snyder Chemical, Bethel, Conn.	Phenolic resins	300,000	45
Heresite & Chemical, Manitowoc, Wis.	Phenolic resins	77,000	45
Union Carbide & Carbon, Marietta, Ohio	Phenolic resins	74,700	45
United States Plywood, Portland, Ore.	Phenolic resins	5,740,000	55
Allied Chem. & Dye, Philadelphia, Pa.	Phenolic resins	56,985	45
Monsanto Chemical, Everett, Mass.	Phthalate esters	818,400	45
Hercules Powder, Brunswick, Ga.	Phthalate esters	2,207,800	45
	Pine oil, turpentine, resins	833,400	45
American Polymer, Peabody, Mass.	Para cymene	407,090	50
Pan-Am Southern, El Dorado, Ark.	Plastics	89,400	55
Union Carbide, Bound Brook, N. J.	Polybutylene	215,000	65
	Polyester resins	349,600	40
	Polystyrene resins	1,536,250	45
Du Pont, Orange, Tex.	Polyethylene	6,195,000	60
Texas Eastman, Harrison, Tex.	Polyethylene	7,000,000	60
Union Carbide & Carbon, Los Angeles County, Calif.	Polyethylene	36,323,000	60
Union Carbide & Carbon, Seadrift, Tex.	Ethylene oxide, polyethylene	66,300,474	50
Union Carbide, South Charlestown, W. Va.	Polyethylene	1,405,700	60
Pathfinder Chemical, Point Pleasant, W. Va.	Polystyrene resins	2,397,650	45
Shawinigan Resins, Springfield, Mass.	Polyvinyl butyral resin	175,750	50
Shawinigan Resins, Springfield, Mass.	Polyvinyl formal resins	322,250	50
Acme Resin, Chicago, Ill.	Resins	317,935	55
Hercules Powder, Hattiesburg, Miss.	Resin Amine D	532,750	45

best, most alert and progressive managements, AIM lists in its present ratings at least 78 (out of 317) companies that can be considered as part of the chemical process field—or even more, depending on one's definition of a chemical process industry.

LABOR

Pre-Holiday Peace: Two strike settlements and a sprinkling of other new contracts make for a relatively tranquil moment in the chemical processing industry's industrial relations this week before Thanksgiving Day.

• Most important is the settlement of the strike that halted alkali production at Columbia-Southern's plant in Corpus Christi, Texas, for more than seven weeks. It was the first time the 18-year-old plant had been shut down by a strike, and a company spokesman estimated that the 475 striking members of United Gas, Coke & Chemical Workers (CIO) lost a total of around \$300,000 in wages during the period. The one-year contract provides for an 11¢/hour general wage increase and three weeks' vacation after 15 years' service, both of which terms were offered by the company before the strike started. However, local union President R. M. Rigby says the pact is "a long step in getting our inequities solved and bringing our contract up to par with standard contracts around the country." He says the previous offer contained unsatisfactory language and working conditions and inequities among certain jobs.

• Both sides declined to reveal terms of the settlement that ended a four-day walkout of about 500 members of the AFL Plumbers & Steamfitters at the Indiana Ordnance Works, Charlestown, Ind. The contractor, Blaw-Knox, is reconditioning the big Government-owned powder plant for future operation by Du Pont. The stoppage was blamed on the firing of a foreman and a worker who were members of the union.

• While negotiating its new 7¢ general wage increase with North American Cyanamid, Local 165 of International Chemical Workers Union (AFL) also gained some 200 new members at the Welland Works near Niagara Falls, Ontario. In addition, a 2¢ boost will go to employees in five work units through reclassification.

• Higher shift premium and additional fringe benefits are provided in the contract that will run to Nov. 1, 1953, for workers at the General Aniline Works in Linden, N. J. The contract is with the General Aniline Employees Organization, an independent

union representing 1,385 of the plant's 1,750 employees. Shift differential is up one cent to 9¢/hour; there will be an 8¢/hour premium for work with certain equipment and in certain hours; and other fringe benefits. The contract retains a cost-of-living escalator clause that resulted in a 2.77% increase last February.

• Linde Air has signed new contracts covering its plants in Birmingham, Ala., and Jackson, Miss. The employees, members of ICWU, will receive a 5¢ across-the-board wage increase and other benefits, including more liberal pension and insurance plans.

• A general wage rise of 11¢ will bring to \$1.91/hour the average wage at National Carbide's Bells Lane plant near Louisville, Ky. The new two-year agreement, subject to WSB approval, covers about 400 members of the AFL Firemen & Oilers union.

• Three months of negotiations finally produced a new contract between Dominion Alkali & Chemical and the AFL Chemical Workers at Beauharnois, Quebec. Wage increases range from 6 to 10¢/hour, and shift differentials have been boosted by 2¢.

No Merger Near: Unification rumors sprang up briefly this week, some observers speculating that the election of an administration allegedly unfriendly to unions and the recent death of CIO President Philip Murray might make this a propitious time to merge the nation's labor organizations. However, officials of both the AFL Chemical Workers and CIO Gas-Coke indicated continued coolness to the idea. An ICWU officer said he thought "strong leaders like Murray" would be needed to achieve unity, and a Gas-Coke leader said he didn't see that Murray's death changed the situation with respect to unification. Dennis Lewis, head of United Mine Workers District 50, declined to comment.

Champion Strikers: Possibly the strikingest labor group in the country this year is Local 146 of the AFL Chemical Workers, which is now picketing Stauffer's synthetic citric acid plant at Nipomo, Calif., after its seven-month strike against Johns-Manville in nearby Lompoc. The citric acid plant, employing just 17 persons, went on-stream Aug. 1, and Local 146 won the bargaining agency for the 10 hourly-paid workers on Sept. 3. On Oct. 17, the union struck for a 20¢ hike in the \$1.45/hour basic wage rate.

While their Lompoc strike was still

DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Texas Eastman, Harrison, Tex.	Synthetic hard wax	3,800,000	50
Monsanto Chemical, Springfield, Mass.	Synthetic resins	500,000	35
Commercial Solvents, Terre Haute, Ind.	Tributyl phosphate	232,500	45
Monsanto Chemical, St. Louis, Mo.	Tricresyl phosphate	780,000	45
Dow Chemical, Midland, Mich.	Plasticizers	2,675,000	55
Diamond Alkali, Deer Park, Houston, Tex.	Vinyl resins	2,526,000	45
Dow Chemical, Midland, Mich.	Vinyl resins	10,307,600	45
Dow Chemical, Allyn's Point, Conn.	Vinyl resins	9,982,000	45
Dow Chemical, Freeport, Tex.	Vinyl resins	5,950,000	45
Firestone Tire & Rubber, Pottstown, Pa.	Vinyl resins	6,022,700	45
General Tire & Rubber, Calvert City, Ky.	Vinyl resins	5,319,000	45
B. F. Goodrich Chemical, Calvert City, Ky.	Vinyl resins	5,871,100	45
Monsanto Chemical, Springfield, Mass.	Vinyl resins	92,000	45
Monsanto Chemical, Texas City, Texas	Vinyl resins	3,681,250	45
National Starch Products, Plainfield, N.J.	Vinyl resins	253,475	45
Shawinigo Resins, Springfield, Mass.	Vinyl resins	1,052,950	45
Union Carbide & Carbon, Texas City, Tex.	Vinyl resins	13,837,000	45
U. S. Rubber, Painesville, Ohio	Vinyl resins	3,297,725	45

ACYCLIC ORGANICS

Air Reduction, Louisville, Ky.	Acetylene	81,715	50
Air Reduction, Calvert City, Ky.	Acetylene	1,001,000	50
Dye Oxygen, Phoenix, Ariz.	Acetylene	18,000	50
Du Pont, Victoria, Tex.	Adiponitrile	33,475,000*	45
Du Pont, Orange, Tex.	Adipic acid, hexamethylene diamine	4,549,000*	45
Du Pont, Belle, W. Va.	Adipic acid, hexamethylene diamine	1,630,000*	45
Ethyl Corp., Baton Rouge, La.	Antiknock compounds	1,563,700	65
		2,591,600	50
Dow Chemical, Freeport, Tex.	Butadiene	3,480,000	60
Dow Chemical, Midland, Mich.	Butadiene	136,400	60
Firestone Tire & Rubber, Pottstown, Pa.	Butadiene, butylene	961,500	60
Pickler Industries, Edgington, Pa.	Butadiene	4,309,600	60
Union Carbide & Carbon, Texas City, Tex.	Butadiene	893,300	60
Union Carbide & Carbon, South Charlestown, W. Va.	Butyl, ethyl, propanediol, ethylhexyl amine	208,000	45
Diamond Alkali, Painesville, Ohio	Carbon tetrachloride	1,300,000	45
Stauffer Chemical, Louisville, Ky.	Carbon tetrachloride	2,524,000	45
Diamond Alkali, Painesville, Ohio	Chemicals	741,000	45
National Petrochemicals, Tuscola, Ill.	Perchloroethylene	1,070,000	50
Shell Chemical, Houston, Tex.	Ethyl chloride	4,515,950	65
	Ethyl chloride	6,232,000	65
		412,000	45
		410,000	15
Shell Oil, Harris County, Tex.	Ethyl chloride	2,645,000	50
		75,000	15
Dow Chemical, Freeport, Tex.	Ethylene	4,827,000	50
		1,848,000	25
Gulf Oil, Port Arthur, Tex.	Ethylene	585,800	60
Shell Chemical, Houston, Tex.	Ethylene, propylene	227,350	50
		1,214,570	75
Dow Chemical, Midland, Mich.	Ethylene dibromide	1,948,000	85
Jefferson Chemical, Port Neches, Tex.	Ethylene oxide	18,700,000	50
Wyandotte Chemicals, Wyandotte, Mich.	Ethylene oxide	6,200,000	50
Borden, Demopolis, Ala.	Formaldehyde	1,028,610	55
Commercial Solvents, Peoria, Ill.	Formaldehyde	385,000	55
Commercial Solvents, Seattle, Wash.	Formaldehyde	723,900	55
Commercial Solvents, Agnew, Calif.	Formaldehyde	450,100	55
Monsanto Chemical, Springfield, Mass.	Formaldehyde solutions	669,000	55
Hercules Powder, Mansfield, Mass.	Formaldehyde	2,379,904	55
Heyden Chemical, Fords, N. J.	Hexamine	182,150	40
		217,003	50
Fairmount Chemical, Newark, N. J.	Hydrazine	146,350	90
Dewey & Almy Chemical, Acton, Mass.	Refined isoprene	440,000	60
Allied Chemical & Dye, location not given	Maleic anhydride, fumaric acid	4,551,500	50
Dewey & Almy, Acton, Mass.	Maleic anhydride	476,000	50
Allied Chemical & Dye, Hopewell, Va.	Methanol, formaldehyde	11,900,000	45
Commercial Solvents, Sterlington, La.	Methylamines	4,337,000	45
Rohm & Haas, Philadelphia, Pa.	Methylamines	434,535	45
Allied Chemical & Dye, Moundsville, W. Va.	Methylene chloride	2,500,000	60
Diamond Alkali, Houston, Texas	Methylene chloride	1,119,000	60
Esso Standard, Baton Rouge, La.	Octyl alcohol	326,000	70
Union Carbide & Carbon, Texas City, Tex.	Oxygen, methanol	9,040,360	50
Columbia Southern, Barbours, Ohio	Perchloroethylene	243,000	50
Southern Alkali (now Columbia-Southern), Louisville, Ky.	Perchloroethylene	3,070,000	45
Gulf Oil, Philadelphia, Pa.	Propane, propylene	229,383	65
Hardesty Chemical, Dover, Ohio	Sebacic acid	539,000	80
Rohm & Haas, Philadelphia, Pa.	Sebacic acid	238,835	80
Quimico, Contra Costa Co., California	Tetraethyl lead	1,022,900	75
		115,500	45
		78,600	15
Hooker-Detrex, Ashtabula, Ohio	Trichloroethylene	192,595	50
Hooker-Detrex, Tacoma Wash.	Trichloroethylene	337,000	50
American Petrochemical, Lake Charles, La.	Vinyl, ethyl chloride	26,640,000	50

SULFUR, SULFURIC ACID

Allied Chemical & Dye, Monument, N. Mex.	Sulfur	80,000	70
Esso Standard Oil, Linden, N.J.	Sulfur	1,290,000	70
		260,000	40
Freeport Sulphur, Flamingeas Parish, La.	Sulfur	13,825,000	70
Globe Oil & Refining, Lemont, Ill.	Sulfur	182,890	70
Imperial Sulphur and Acid, Farmington, N. Mex.	Sulfur	474,163	70
Phillips Chemical, Gaines County, Tex.	Sulfur	240,000	70
Seaboard Oil of Del., Park County, Wyo.	Sulfur	904,800	70
Shell Oil, Deer Park, Tex.	Hydrogen sulfide	86,500	70
Sid Richardson Petroleum, Winkler City, Tex.	Sulfur	177,350	70
Simpson Creek Collieries, Bailey, Md.	Sulfur	433,040	70
Stanolind Oil & Gas, Hockley County, Texas	Sulfur	460,000	70
Stanolind Oil & Gas, North Cowden field, near Midland, Tex.	Sulfur	202,000	70

* Subject to later reduction when cost of certain facilities is determined.

ONLY HUDSON GUARANTEES TO REPLACE MULTIWALL SACKS DAMAGED ON YOUR PACKER

Exceptional quality of Hudson Multiwall Sacks permits unusual guarantee

PALATKA, FLA. Heretofore each Multiwall Sack user has individually absorbed the cost of any sacks which break on his filling and closing machines. But now, Hudson becomes the first and only Multiwall Sack manufacturer to guarantee to replace such broken sacks at no further cost.

According to experts, the average user of Multiwall Sacks normally expects to write off the loss of certain sacks during each day's run. These sacks are damaged due to circumstances beyond control of the Multiwall Sack manufacturer. Overloading of sacks, malfunction of packing or closing machines, or inattention on the part of the operator are some of the common causes of sack breakage.

Hudson is confident that the quality of the Multiwall Sacks they produce can eliminate most of this breakage. That is why they are willing to offer you complete protection through filling and closing operations. Only a company with a superior product would dare offer their customers such a guarantee.

First in industry to offer this replacement guarantee



T. H. Mittendorf

NEW YORK CITY. "Hudson is the first and only Multiwall Sack manufacturer to offer a written replacement guarantee on breakage of Multiwall Sacks," declared T. H. Mittendorf, Hudson's Vice President in Charge of Sales. "Hudson Multiwall Sacks lead the industry as



Hudson Representative, Harry Rafferty (center), points out the packing and closing operations covered by Hudson's new guarantee, to J. Dummett (left), Plant Supt. for Wedron Silica Company.

being the world's most fully guaranteed. We believe they represent the best buy on today's market."

"Under the terms of our unusual guarantee the buyer is protected from the moment he accepts custody of the sacks until the sacks have successfully passed his filling and closing operations. This guarantee greatly extends our usual warranty of quality and workmanship," Mr. Mittendorf pointed out.

Goes into immediate effect

The new Hudson guarantee plan went into effect with all sacks purchased on or after Sept. 15, 1952. Early reports indicate that the guar-

antee is being enthusiastically received.

Prompt delivery on all contracts are assured by the tremendous capacity of Hudson's fully integrated mill at Palatka, Fla. High quality is maintained through inspection and controls at every step from tree to the finished Hudson Multiwall Sack. Hudson packaging engineers see that sacks conform to the exact needs of each user.

Urge Multiwall Sack users to write for facts

The Hudson Pulp & Paper Corp. invites all users of Multiwall Sacks to learn how the new guarantee works by writing for details.

Send for full details:

Tell me, without obligation, about the many advantages of your new Multiwall guarantee.

NAME _____

COMPANY _____

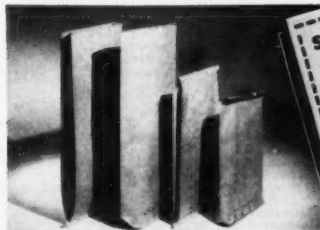
STREET _____

CITY _____

ZONE _____

STATE _____

Hudson Pulp & Paper Corp.
Dept. 122, 505 Park Ave., New York 22, N.Y.



Hudson Multiwall Sacks are available pasted or sewn, and in valve and open mouth styles.

on, members of the local defeated a "raid attempt" on the part of another AFL union, the International Brotherhood of Teamsters. It appeared that the Teamsters' local had tried to use as an organizing nucleus a group of Johns-Manville employees who were willing to give up the strike.

ICWU officials are expressing "satisfaction" with health and safety provisions in the Lumpoc settlement. They say the company added to its pre-strike offer a clause requiring installation of new dust elimination equipment at a cost of around half a million dollars, and will even air-condition the trucks used to haul the diatomaceous earth at the plant.

Capital Currents: At Washington, there's gossip and guesses about the people who'll be in the labor relations line-up next year (probably: Taft, chairman of Senate committee on labor; Pennsylvania's Samuel McConnell, chairman of the House committee on labor; and possibly Harold Stassen or ODM Manpower Boss Arthur S. Flemming, Secretary of Labor); but these probably won't mean so much to CPI industrial relations managers as the changes expected to be made in the Taft-Hartley act. These include:

- Extending the non-Communist affidavit to employers who want to use NLRB services. (Now only union leaders must sign this affidavit.)

- Letting economic strikers who have been replaced vote in elections.

- Easing the curb on secondary boycotts so that employees may refuse to do work shifted from a struck plant.

- Putting union welfare funds under supervision of the Labor Department.

Holiday Awards: Under new WSB rules, chemical companies may grant these holiday concessions without obtaining specific Government approval:

- Give a Christmas or year-end bonus of up to \$40 in cash or gifts.

- Give workers three extra days off, with pay—namely, the Fridays after Thanksgiving, Christmas and New Year's Day.

Also from Washington comes word that labor turnover rates increased in the chemical industry during September. For every 100 employees in the industry, there were 2.5 "quits," 0.5 lay-offs, 0.3 firings, and 0.2 leaving work for military service, retirement and other reasons. Thus there was an average of 3.5 persons separated from these companies during the month, compared to an average of 2.9 new hires for each 100 employees.

DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Union Oil of Calif., Wilmington, Calif.	Sulfur, ammonium sulfate, fuel oil	679,200	70
		70,800	45
	Sulfur	416,000	70
		34,000	45
Vermont Copper, South Strafford, Vt.	Pyrrhotite sulfur	75,114	70
Allied Chemical & Dye, River Rouge, Mich.	Sulfuric acid	406,000	70
American Aniline Products, Lock Haven, Pa.	Sulfuric acid	203,756	70
American Zinc Co. of Illinois, Dumas, Tex.	Sulfuric acid	4,372,000	70
American Zinc of Ill., Fairmont City, Ill.	Sulfuric acid	355,301	70
Blackstone Chemical, Joliet, Ill.	Sulfuric acid	4,000,000	70
Consolidated Chemical Industries, Dayton, Texas	Sulfuric acid	5,945,000	70
Cornwell Chemical, Cornwells Heights, Pa.	Sulfuric acid	481,000	45
Eagle-Picher, Galena, Kans.	Sulfuric acid	3,565,529	70
Minnesota Mining & Mfg., Copley Township, Minn.	Sulfuric acid	680,000	45
Monsanto Chemical, Monsanto, Ill.	Sulfuric acid	1,900,000	70
Monsanto/Tide Water Associated, Avon, Calif.	Sulfuric acid	2,050,000	35
National Lead, St. Louis, Mo.	Sulfuric acid	957,346	70
Stauffer Chemical, Vernon (Los Angeles), Cal.	Sulfuric acid	1,000,000	45
Stauffer Chemical, Compton, Calif.	Sulfuric acid	250,000	70
Sullivan Mining, Shoshone County, Idaho	Sulfuric acid	4,352,370	70
Tennessee Copper, Copperhill, Tenn.	Sulfuric acid	2,944,500	70

PHARMACEUTICALS, ANTIBIOTICS

American Cyanamid, Pearl River, N. Y.	Antibiotics	5,280,000	45
Bristol Laboratories, East Syracuse, N. Y.	Antibiotics	9,203,766	50
Merck & Co., Danville, Pa.	Antibiotics	1,292,000	50
Chas. Pfizer, Long Island, N. Y.	Antibiotics	4850,000	50
E. R. Squibb, New Brunswick, N. J.	Antibiotics	3,442,531	60
Wyeth Pharmaceuticals, West Chester, Pa.	Antibiotics	3,270,232	60
		1,566,707	30
Wyeth, Marietta, Pa.	Antitoxins, biologicals	307,519	45
Lindsay Chemical, West Chicago, Ill.	Cerium oxalate	12,753	85
Merck & Co., Rahway, Linden, N. J.	Cortisone	362,150	50
Merck & Co., Danville, Pa.	Cortisone	978,900	50
Monsanto Chemical, St. Louis, Mo.	Cortisone	18,415,000	50
Upjohn, Kalamazoo, Mich.	Cortisone	3,655,902	50
Commercial Solvents, Terre Haute, Ind.	Dextran	109,000	70
Dow Chemical, Pittsburg, Calif.	Methionine	1,502,700	40
Merck & Co., Danville, Pa.	Glucine	114,730	40
New York Quinine & Chem., Newark, N.J.	Opium derivs.	313,885	60
Commercial Solvents, Terre Haute, Ind.	Penicillin	252,450	50
Eli Lilly, Indianapolis, Ind.	Penicillin, streptomycin	1,425,800	55
Parko, Davis, Detroit, Mich.	Penicillin	18,451,800	55
Chas. Pfizer, Croton, Conn.	Penicillin	7,300,000	60
Abbott Laboratories, North Chicago, Ill.	Pharmaceuticals	300,000	45
National Drug, Swiftwater, Pa.	Vaccines, antitoxins	83,314	45
Sterling Drug, Cincinnati, Ohio	Anti-malarial drugs	47,464	60

OTHER INORGANICS

National Lead, Perth Amboy, N. J.	Antimony oxide	194,066	60
Pacific Coast Borax, Wilmington, Calif.	Boric acid	199,074	30
Dow Chemical, Midland, Mich.	Brine	1,780,000	50
Dow Chemical, Midland, Mich.	Bromine brine wells	276,500	50
	Brine	1,101,990	50
	Bromine	512,745	50
Dow Chemical, Midland, Mich.	Bromine brine wells	122,056	50
Michigan Chemical, Manistee, Mich.	Liquid bromine	361,058	65
Monsanto Chemical, Muscle Shoals, Ala.	Calcium carbide	3,875,000	50
Midwest Carbide, Mayes County, Okla.	Calcium carbide	2,021,000	50
Pacific Carbide & Alloys, Portland, Ore.	Calcium carbide	91,513	50
Diamond Alkali, Kearny, N.J.	Chromic acid	118,440	45
Diamond Alkali, Painesville, Ohio	Chromic acid	195,450	45
Mineral Pigments, Muirkirk, Maryland	Pure chromium oxide	98,300	60
Aluminum Ore Co., East St. Louis, Ill.	Cryolite	750,000	85
Reynolds Metal, Colbert county Ala.	Cryolite	155,650	70
Virginia-Carolina Chemical, Nichols, Fla.	Cryolite	474,000	85
Allied Chemical & Dye, North Claymont, Del.	Fluorspar	61,272	50
Kaiser Aluminum & Chemical, near Fallon, N.M.	Fluorspar	410,700	70
Ozark-Mahoning Defense Co., Deming, Grant County, N. Mex.	Fluorspar, acid grade	589,836	60
Ozark-Mahoning, Jackson County, Colo.	Fluorspar	752,230	60
Reynolds Mining Corp., Poncha Springs, Colo.	Fluorspar	393,481	70
J. R. Simplot, Meyers Cove, Ida.	Fluorspar	174,740	70
Eagle Picher, Joplin, Mo.	Germanium	22,850	70
American Zinc of Ill. Fairmont City, Ill.	Germanium oxide	90,000	70
Allied Chemical & Dye, Baton Rouge, La.	Hydrofluoric acid	82,000	80
Nyotex Chemicals, Houston, Tex.	Hydrofluoric acid	88,737	40
Harshaw Chemical, Cleveland, O.	Anhydrous hydrogen fluoride	275,000	65
Stanley Works, New Britain, Conn.	Iron sulfate	75,714	40
National Lead, Philadelphia, Pa.	Lead comp.	106,422	45
Metalloy Corp., St. Louis Park, Minn.	Lithium chemicals	131,050	80
Foote Mineral, Kings Mountain, N.C.	Lithium ores	225,000	70
Western Electrochemical, Henderson, Nev.	Manganese dioxide	161,746	70
Tennessee Corp., Washington, D.C.	Manganese sulfate	737,465	70
Baumhoff-Marshall, Cascade, Ida.	Monazite sands	160,000	65
Ohio-Apex, Nitro, W.Va.	Phosphorus oxychloride	181,605	70
Molybdenum Corp. of America, location not specified	Rare earth concentrates	549,427	75
American Smelting & Refining, Barber, N.J.	Selenium	755,540	70
Kowacki Chemical, Bovertown, Pa.	Selenium	25,507	65
Davison Chemical, Curtis Bay, Baltimore, Md.	Silica gel	315,703	45
National Lead, St. Louis, Mo.	Silicate white lead	150,602	45
Oldbury Electro-Chemical, Lowndes County, Miss.	Sodium chlorate	3,250,000	60
Pennsylvania Salt, Calvert City, Ky.	Sodium chlorate	1,452,647	60
Pennsylvania Salt of Washington, Portland, Ore.	Sodium chlorate	702,000	60
Diamond Alkali, Dallas, Tex.	Sodium silicate	392,390	55
Foote Mineral, Kings Mountain, N.C.	Spodumene, columbite, beryllium ore	144,828	70

Inquire first of **Baker** if you need
ELECTRONIC TUBE CHEMICALS
to a defined purity in **TONNAGE** lots



... for defense needs

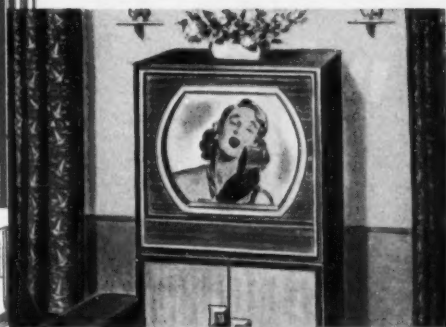
National defense needs are multiplying the problems of many companies who are in need of tonnage chemicals to exacting specifications.

Particularly in demand are chemicals required for electronic purposes.

If you need such chemicals—either for defense or for civilian use, or for both—inquire first of Baker. Baker is adjusting its facilities to meet emergency needs, and can supply you with tonnage chemicals to known standards of purity. We will also be glad to discuss, in confidence, your requirements for tonnage chemicals to your own exacting specifications.

Baker has long been trained in the art of exactness. It has, for many years, supplied chemicals to a defined purity "by the ton." We invite you to call upon Baker—and to depend upon Baker as a reliable source of supply.

J. T. Baker Chemical Co., *Executive Offices and Plant,*
Phillipsburg, New Jersey.



... for civilian needs

**A few Baker
ELECTRONIC
CHEMICALS**

Baker R500
(a prepared cathode spray)

Barium Acetate
Barium Carbonate
Barium Nitrate
Cadmium Salts
Strontium Carbonate
Strontium Nitrate
Triple Carbonates



Baker Chemicals

REAGENT • FINE • INDUSTRIAL

Here's the Versatile Plasticizer

OFFERED BY
**EL DORADO
OILWORKS**

ELDOPLAST "45" PLASTICIZER

GIVES YOU

1. Excellent plasticization
2. Superior low-temperature properties
3. Low volatility
4. Wide range of applications

Use it for: Vinyl Chloride • Vinyl Chloride-vinyl acetate copolymers • Vinyl butyral resins • Ethyl cellulose resins • or your own formulation.

Write Dept. "W" for samples and specifications

EL DORADO
SINCE 1892
OIL WORKS

Laboratory division

Main office: 311 California Street
San Francisco, Calif.
Plants: Oakland, Calif.
Bayonne, New Jersey

BUSINESS & INDUSTRY

DPA Certificate Summary (cont.)

Company, Location	Product	Amount Certified	% Certified
Lithium Corp. of America, Hill City, S.D.	Spodumene concentrate	157,591	70
Tantalum Defense Corp., North Chicago, Ill.	Tantalum potassium fluoride	450,050	85
Lindsay Chemical, West Chicago, Ill.	Thorium nitrate	1,750,000	70
American Cyanamid, Savannah, Ga.	Titanium dioxide	13,875,000	45
Kawecki Chemical, Boyertown, Pa.	Titanium, zirconium fluorides	20,308	70
North Metal & Chemical, York, Pa.	Tungstic acid	72,323	60
International Minerals & Chem., Polk County, Fla.	Uranium	800,000	75
National Lead, Elwood City, Pa.	Zirconium tetrachloride	73,930	65
Carborundum, Cincinnati, Ohio	Zirconium, hafnium	2,443,000	85

MISCELLANEOUS

Revlon Products, Flemington, N.J.	Aerosol insecticides	44,490	45
Detrex Corp., Wyandotte, Trenton, Mich.	Alkali cleaners	664,590	45
Nuodex Products, Newark, N.J.	Aluminum soap	77,895	55
Koppers Company, Oil City, Pa.	Aviation fuel antioxidant	195,792	50
Sinclair Refining, Houston, Tex.	Barium sulfonate	98,650	65
		23,700	50
		23,480	15
Pennsylvania Salt Mfg. Co., Wyandotte, Mich.	Super tropical bleach for military use	282,762	70
Hercules Powder, Hattiesburg, Miss.	Camphene	527,000	45
Dow Chemical, Freeport, Tex.	Chemical research	2,600,000	45
	Chemicals	4,984,500	45
	Magnesium, etc.	625,000	45
	Chloroform, hydrochloric acid	215,000	60
Diamond Alkali, Painesville, O.	Chemicals	228,500	45
Dow Chemical, Freeport, Tex.	Chemicals	1,199,000	45
Dow Chemical, Midland, Mich.	Chemicals	998,200	45
Dow Chemical, Midland, Mich.	Chemicals	5,226,300	45
E. I. du Pont, Deepwater Point, N.J.	Chemicals	400,000	85
Monsanto Chemical, Monsanto, Ill.	Chemicals	795,000	45
		270,900	45
		2,188,000	45
Monsanto Chemical, St. Louis, Mo.	Chemicals	1,900,000	45
Monsanto Chemical, Nitro, W.Va.	Chemicals	1,150,000	45
	Chemicals	73,300	30
Pennsylvania Industrial Chemical, Chester, Pa.	Chemicals	7,640,800	60
Union Carbide & Carbon, Niagara Falls, N.Y.	Chemicals	1,207,800	50
Pittsburgh Coke & Chemical, Neville Island, Pa.	2,4-D	165,000	45
	Acid esters	60,000	45
Columbia Southern, Barborton, Ohio	Herbicide	3,963,000	45
Ethyl Corp., Baton Rouge, La.	Herbicide	2,700,000	35
Monsanto Chemical, Nitro, W.Va.	Herbicide	124,700	45
Monsanto, St. Louis, Mo.	Hydraulic fluids	315,000	45
Rohm & Haas, Bristol, Pa.	Hydraulic oil components	605,265	65
		68,366	15
Monsanto Chemical, Monsanto, Ill.	Hydrogenated products	539,880	60
Continental Oil, Ponca City, Okla.	Lube oil additives	326,310	65
		388,942	50
		328,219	40
		645,640	15
Lubrizol, Wickliffe, Ohio	Lubricating oil detergents	173,000	65
		164,953	65
		191,770	50
Shell Chemical, Martinez, California	Lubricating oil detergents	757,050	65
		21,350	45
		11,600	15
Edwol Laboratories, Ringwood, Ill.	Metal	118,500	45
	Formaldehyde bisulfite	9,500	45
	Chemicals	20,832	45
Arnold Hoffman, Dighton, Mass.	Military chemicals	315,314	50
Ciba States, Ltd., Toms River N.J.	Military chemicals	2,740,800	50
Monsanto, Anniston, Ala.	Military chemicals	229,000	80
Vitro Chemical, Salt Lake City, Utah	Military products	838,214	80
American Cyanamid, Bound Brook, N.J.	Military textile dye	955,000	50
United States Rubber, Naugatuck, Conn.	Miticide	279,250	45
Commercial Solvents, New York	Nitroparaffins	13,195,300	60
Lubrizol, Deer Park, Tex.	Oil additives	444,437	65
		548,637	45
		655,807	15
Lubrizol, Wickliffe, Ohio	Oil additives	325,403	15
		196,362	45
		247,511	65
Monsanto Chemical, Monsanto, Ill.	Oil additives	760,050	65
		798,050	40
		87,900	15
Oronite Chemical, Oak Point, La.	Oil additives	316,630	50
		153,770	30
		83,800	10
Oronite Chemical, Oak Point, La.	Phenate, sulfonate detergents	1,057,600	35
		328,900	30
Esso Standard Oil, Baton Rouge, La.	Petroleum, chemical products	207,200	15
Morton Withers Chemical, Greensboro, N.C.	Petroleum sulfonates	8,780,000	65
		1,790,000	50
		1,236,428	65
		353,314	45
		186,000	15
General Aniline & Film, location not shown	Photo film chemicals	1,509,500	45
Du Pont, Deepwater Point, N.J.	Ponsol dyes	1,786,000	50
Monsanto Chemical, Nitro, W.Va.	Rubber cure comps.	485,600	60
		106,200	60
Linde Air Products, Tanawanda, N.Y.	Silane, silicones	751,000	60
Southern Alkali, Corpus Christi, Tex.	Sodium tannate	350,000	50
Shell Oil, Martinez, Calif.	Sulfonates	414,000	65
		62,000	40
Ferro Enamel, Cleveland, Ohio	Thermite	33,237	60
Hercules Powder, Henderson, Nev.	Toxaphene	1,967,894	45

Another new **JEFFERSON** *chemical*
PROPYLENE CARBONATE



now available in pilot-plant quantities

Properties of a typical sample of Jefferson's Propylene Carbonate are:

Boiling point, °C	242
Freezing point, °C	—49
Flash point (open cup), °F	270
Refractive index at 20°C	1.4209
Specific gravity, 20/4 °C	1.2057
Appearance	Mobile water-white liquid
Viscosity, centistokes	
at —40°F	19.4
at 100°F	1.67
at 210°F	0.78

Suggested Applications:

hydraulic fluids
 solvent and selective solvent
 chemical intermediate
 hydroxypropylating agent

You may obtain technical information and experimental samples* for research and development by writing to our Market Development Division, Dept. B.

★ Ethylene Carbonate samples and data are also available.

Jefferson
 CHEMICAL COMPANY, INC.

260 MADISON AVENUE, NEW YORK 16, N. Y.

Houston Sales Office: 318 Melrose Building, Houston 2, Texas
 Warehouse Stores: Teaneck, New Jersey; Chicago, Illinois; Houston, Texas



Essential Chemicals From Hydrocarbon Sources:

Ethylene Oxide
 Ethylene Glycol
 Ethylene Dichloride
 Diethylene Glycol
 Monoethanolamine
 Diethanolamine
 Triethanolamine

RED DIAMOND

GO 2

one cylinder

or **TEN TONS**

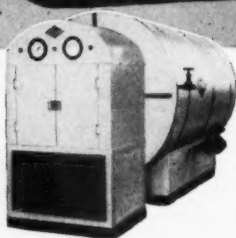
Standard 20 and 30 lb. cylinders.



Specially designed "Liquiflow" tank truck transports 10 tons of liquid CO₂.



"Liquiflow" receiver in customer's plant is charged with low pressure liquid carbon dioxide from "Liquiflow" tank truck.



Whether your CO₂ requirements are one cylinder, or more than 10 tons, "Liquid" can supply it wherever you are. One of its many distribution points is near you—ready to deliver, when you want it, as you want it. In 50 lb. cylinders or by "Liquiflow" tank truck to specially designed "receivers" in your plant. It is also available in solid form as dry ice, in whatever quantity you require.

A Liquid field engineer is available to assist you in your plans or in solving your problems in any CO₂ application.

A request to any of our branch offices or to our headquarters in Chicago will bring a prompt reply.



THE LIQUID CARBONIC CORPORATION
3100 South Kedzie Avenue, Chicago 23, Illinois
WORLD'S LARGEST PRODUCER OF CO₂

Plan for Plenty

As the shortage of technical personnel worsens, plans are being propounded to make smoother and swifter the path through college.

At Hot Springs, Va., last week, this problem was the subject of a panel discussion at the midyear meeting of the Scientific Apparatus Makers Association. One aspect of the shortage was pin-pointed by L. A. Wetlaufer, assistant manager of Du Pont's employee relations department: "In our company, more than 25% of our requirements for new technical personnel in the past two years has been for defense purposes."

Wetlaufer recommended, as part of a long-range program to make technicians more plentiful, that educators look for ways to keep technical students from dropping out or "flunking out" of science and engineering courses. The reported attrition rate of 50%, he opined, "appears to be extremely excessive." He also urged that the Armed Forces allow company personnel representatives to talk to service men at separation centers.

At Philadelphia, President Harold E. Stassen of the University of Pennsylvania announced that his university and Ursinus College (at nearby Collegeville, Pa.), have adopted a joint plan intended to draw more students into science and engineering studies. A student may study liberal arts for three years at Ursinus, then transfer to Penn for two years in either Towne Scientific School or Moore School of Electrical Engineering. At the end of the five years, the student will receive both a B.A. degree from Ursinus and a B.S. in Engineering from Penn.

LEGAL

Prosecuting Rampage: Canada has decided to prosecute its rubber companies accused of having formed price-fixing combines (CW, June 14) and also is considering haling 44 paper companies into court on a charge of forming an illegal combine in the fine paper industry. Minister of Justice Stuart Carson has appointed two Toronto lawyers to prepare and prosecute the case against 19 rubber companies and the Rubber Association of Canada.

Benevolent Monopoly: Also comprising a combine, but escaping prosecution, are four English pharmaceutical manufacturers organized in a group called "British Insulin Manufacturers." The Monopolies and Restrictive Practices Commission says that these companies supply nearly all the insulin used in the United Kingdom, and that



FOR SOAP MAKING

Special low iron grade—45-50%
Available in 675 lb. drums and tank cars

FOR GENERAL CHEMICAL USE

SOLID—90%. Available in 700 lb. drums.

FLAKE—90%. Available in 100, 200 & 400 lb. drums.

GRANULAR (BROKEN)—90%. Available in 100, 210 & 425 lb. drums.

LIQUID—Iron-free, a clear water-white solution of 45%. Available in tank cars and 675 lb. drums.

LIQUID—Special low chloride, iron-free grade—45%.

AMERICAN SELECTED WALNUT—Available in 100, 210 & 425 lb. drums.

caustic potash

any amount...in any grade delivered right on schedule



Penndro makes diagnosis easier

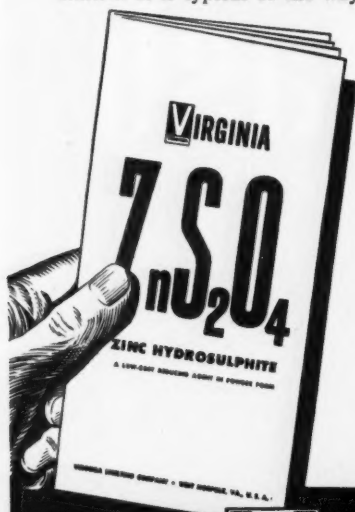
"Virginia" PENNDRO—adjusted zinc hydrosulphite—figures importantly in the Kligman Method of visualizing microscopic fungi. It is now easy to identify the fungi in a solution dyed red with acid fuchsin.

A solution of ZnS_2O_4 bleaches the background color so that the fungi are clearly seen as a dark red mass. PENNDRO is packaged in individual capsules designed to impart proper strength when added to 100 milliliters of distilled water.

This important diagnostic advance in medical science has been reported in the *Journal of the American Medical Association*. It is typical of the way in which over 40 industries are indebted to "Virginia" products for noteworthy progress.

Perhaps the properties of our major industrial chemicals— SO_2 , ZnS_2O_4 , $ZnSO_4$, $Na_2S_2O_4$ —can play a prominent part in improving your products or processes. Our Research Department will go all out to help you develop profitable applications, such as bleaching, reducing or neutralizing agents, antichlor, preservative or pH control. Send us your problems today on your business letterhead.

VIRGINIA SMELTING COMPANY
Dept. CW, West Norfolk, Virginia



Field Offices
NEW YORK
BOSTON
PHILADELPHIA
DETROIT
CHICAGO
ATLANTA

VIRGINIA
Chemicals

they have an understanding that no company will change its prices without informing the others. However, the agency says this is "not unreasonable" in view of the companies' collaboration on technical improvements, and adds that the monopoly appears to operate in the public interest, as insulin prices in Britain are lower than in most other countries.

Vitriol Violation: Shipment of 290,000 pounds of copper sulfate to France without proper clearance through the Office of International Trade resulted in a loss of export privileges for six months for Bel Export Co. and Caymex Trading Co., both of New York. The companies agreed to a consent order in which they admitted the charges that they obtained an export license on the copper sulfate through "false representations" and that they failed to label the cargo as licensed by U. S. for shipment to France and not to be diverted to another destination.

Alluring Lucre

Chemical companies this week are being invited to enhance their prestige and good-will by adopting new check design typography so that the companies' checks will have esthetic appeal and "advertising impact."

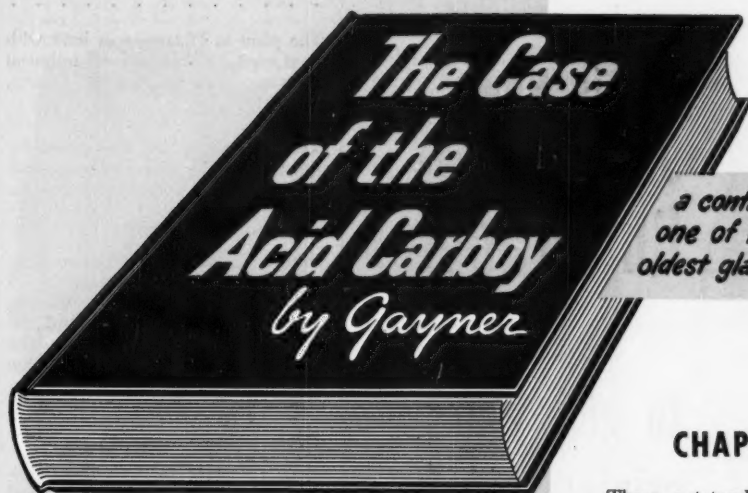
A brochure containing sample checks of three chemical concerns—Reichhold of Detroit, Genesee Research of Rochester, and Globe Chemical of Cincinnati—is being beamed to chemical firms throughout the nation by the Todd Co., Rochester, N.Y.

That company, which won this year's national offset lithography competition with its check designs, has woven each company's name, address and trade-mark into a pattern along with the usual elements of check make-up. Todd calls these "outstanding checks in the chemical industry."

FOREIGN

Germany-Israel: Chemical products are included among materials which Germany must ship to Israel as war reparations. A total of DM13 million (\$3.4 million) worth of chemicals is to be shipped by next March 31, with an equal amount due during the next 12 months. Industrial chemicals, agricultural chemicals, dyestuffs and pigments, and pharmaceuticals are listed among reparation materials.

Rayon/Argentina: Argentina, which now imports about 40% of its rayon needs, will be self-sufficient when the factory which has been under construction since 1948 begins operation.



*a continued story by
one of America's
oldest glass manufacturers*

CHAPTER NINE



TIME-PROVEN CARBOY POINTS

- 1 Gayner glass is fully annealed. Maximum shock-resistance for safety.
- 2 Uniform, heavy walls. Strong, durable, greatest serviceability.
- 3 Easy to clean because it's GLASS. Re-usable for same or different liquids.
- 4 Resistant to chemical attack. No pores or pits to absorb water or chemicals.
- 5 Bottle held firmly by cork wedges. All corners of box securely cushioned.
- 6 Light in weight—low return costs.
- 7 Box is clear, sturdy, seasoned white pine. Bottle easy to install; convenient to handle and store.
- 8 Approved by Bureau of Explosives. MCA Standard 13-gallon carboy bottles.

Three outstanding qualities of Gayner Glass carboys have given these "king size" glass containers top preference by the chemical and process industries for almost 60 years.

- **Versatility**—their extensive range of usefulness for carrying all kinds of liquids and many types of powdered, granular, and crystalline products.
- **Impermeability**—their natural property of being impervious to acids and other fluids.
- **Interchangeability**—their ability to carry and store DIFFERENT liquids as the occasion demands—without contamination of contents or container.

Highly resistant to chemical attack, Gayner Glass carboys will not pit, corrode, nor absorb water or chemicals. They are quickly and thoroughly cleansed by ordinary washing methods.

Light in weight, low in shipping costs, convenient to handle, transport and store, Gayner carboys are today the MCA standard 13-gallon glass container used by leading manufacturers throughout the nation.

Gayner offers a complete acid bottle service to industry—from 1 lb. glass bottles to 13-gallon carboys. Your packaging problem will be given our immediate and critical attention.

Illustrated brochure with prices and shipping details on carboys, bottles, boxes and cartons mailed promptly on request.

IMMEDIATE DELIVERY ON ALL TYPES

GAYNER

SALEM, NEW JERSEY

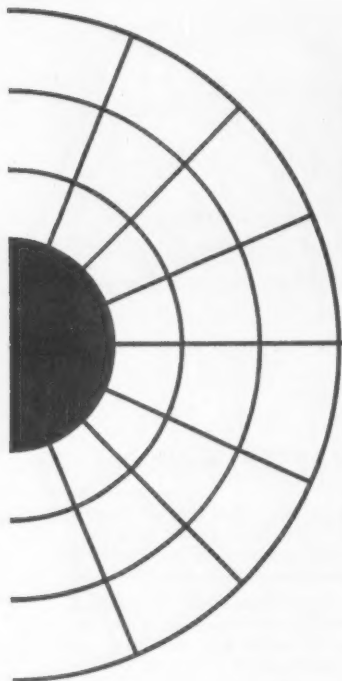
MANUFACTURERS OF FINE GLASS CONTAINERS



GLASS WORKS

FOUNDED IN 1874

FOR CHEMICALS, DRUGS, OILS, WINES, JUICES...



Bemis Now Offers You Quantacolor

to give your
printed brand
"MORE SELL"

You can get the sales benefits of QUANTACOLOR in your branded bags FROM BEMIS ONLY. It adds nothing to your bag cost. This is another extra Bemis service to make your brand sell better and more profitably.

What is Quantacolor?

Quantacolor is a scientific yardstick for making certain that the colors combined in any design or product are in harmony . . . that they look right together. Nature creates colors in four Quantas . . . and there are all colors of the spectrum in each Quanta. Colors from the same Quanta are pleasing together. Colors from

different Quantas are *displeasing* together. Very slight changes, sometimes scarcely noticeable, will put a color into the Quanta that *agrees* with its companion colors.

Does Quantacolor actually help sell?

It has proved its sales value in many types of packaging and merchandise.

Does Quantacolor mean you must redesign your brand?

Not at all. Maybe your brand colors are in perfect harmony now. If so, Quantacolor will confirm it. If not, a slight change of a color will probably suffice.

Whether you use Bemis Paper Bags, Cotton Bags, Burlap Bags or Plastic Bags . . . you will benefit from Quantacolor. Ask for details.

Bemis



BEMIS BRO. BAG CO.
408-J Pine St.,
St. Louis 2, Mo.

Give me details about Quantacolor
and how it will help sales.

Name _____

Company _____

Address _____

City, Zone, State _____

The plant at Platanos was built with local capital and money and technical assistance from Italy's SNIA-Viscosa, S.A.

Alumina Ltd. is the new name for Aluminum Ltd.'s Jamaica mining unit. Formerly it had the title, Jamaica Bauxite Ltd.

Sulfuric/Australia: The Carves-Monsanto design will be used in the \$5 million sulfuric acid plant now being built by Cresco Fertilizers, Ltd., at Port Adelaide, South Australia. The acid-from-pyrites plant, termed the largest single plant in the British Commonwealth, will begin production in late 1954 or early 1955.

Methanol-Ammonia/Rumania: Production at the B. H. Berea chemical plant is now reported in full swing. The plant uses natural gas from the Rumanian oil fields to produce methanol and ammonia. Part of the production is to be available for export.

Penicillin/Poland: Production of crystalline penicillin has begun in a new plant near Warsaw, using a process developed by Polish and Czech scientists. It is claimed to produce a product which does not lose potency even if stored for longer than three years.

Rayon/Austria: The world textile slump was seldom more graphically seen than in Austria where the viscose plant at Lenzig, which until a few months ago was operating at capacity, now is producing at about half rate.

Silicones/South Africa: Silicones are now being incorporated into automobile polishes made by a Johannesburg manufacturer, who is exporting them to East Africa, the Belgian Congo, and Egypt.

KEY CHANGES . . .

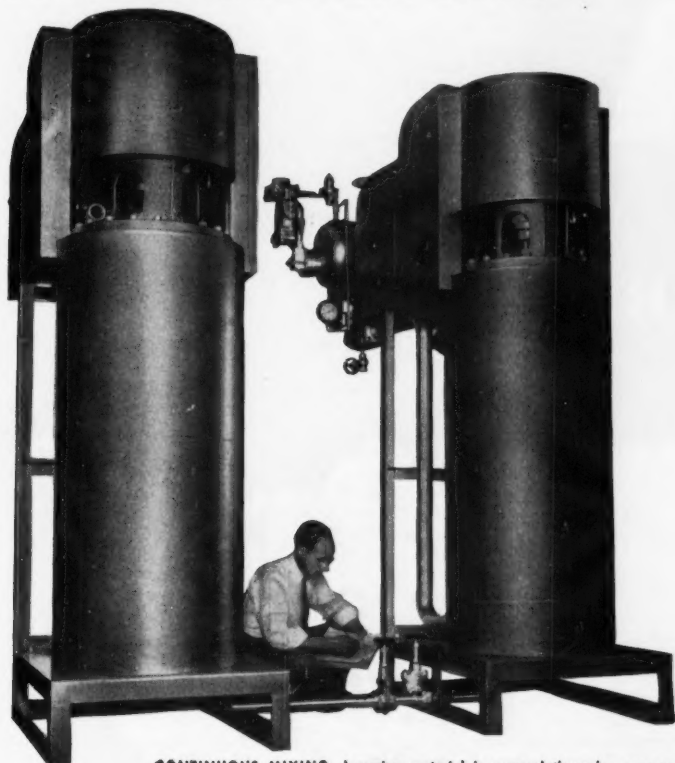
Malcolm D. Sanders: To executive vice-president, Innis, Spiden and Co., Inc., New York, N. Y.

Howard E. Milius: From Antara Chemicals to sales manager, Humphrey-Wilkinson, Inc., North Haven, Conn.

Harold C. Whittemore, Jr.: To vice-president, Warwick Chemical Co., Long Island City, N. Y.

Carlyle C. Caldwell: To assistant vice-president, National Starch Products, Inc., New York, N. Y.

Girdler Process News



CONTINUOUS MIXING. Incoming material is pumped through a narrow, annular passage, is thoroughly mixed by revolving blades. This compact, closed, heat-transfer system processes continuously at high speed for high daily throughputs.

Improves efficiency of chemical reactions with VOTATOR® Heat-Transfer Apparatus

OPERATING on a continuous, closed-system basis, VOTATOR Heat-transfer Apparatus gives high rates of heat transfer... is widely used for heating and cooling, crystallizing, controlling heat of reaction, and other processes.

Used as a continuous mixer and chemical reaction vessel, this equipment offers many advantages:

- reactants can be injected at multiple points, and air or other gases can be metered and introduced continuously.
- a mixture of two or more reactants can be maintained, and heat of reaction closely controlled.

- reaction temperatures are achieved quickly, avoiding undesirable side reactions.
- viscous liquids can be handled easily, and the reacted product can be extruded.
- hazardous chemicals can be processed safely.

Absolute and precise control of time and temperature is automatically maintained... resulting in greater uniformity and substantial labor savings. Mixing is thorough and intimate, and reactions can be completed in a matter of seconds. Thus remarkable volume can be attained in a small space.

The **GIRDLER** Corporation

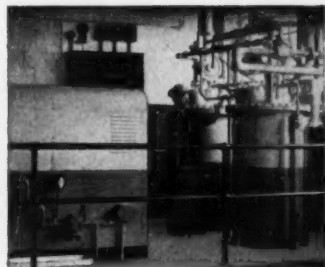
LOUISVILLE 1, KENTUCKY
Votator Division

VOTATOR DIVISION: Processing Apparatus for the Food and Chemical Industries

GAS PROCESSES DIVISION: Designers, Engineers, and Constructors for the Petroleum and Chemical Industries

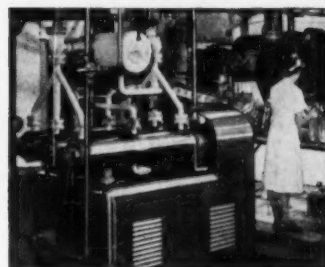
THERMEX DIVISION: Industrial High Frequency Dielectric Heating Apparatus

November 22, 1952 • Chemical Week



Processes Grease in 3 Minutes

VOTATOR Grease-making Apparatus cooks and cools ingredients for grease for this manufacturer in a 3-minute cycle. Time-consuming, labor-taking batch methods are eliminated. With continuous processing under precise, automatic control, grease uniformity is maintained easily. Moisture content and temperature are controlled accurately.



Sterilizes and Pasteurizes

A wide range of food products are sterilized and pasteurized at very high efficiency with VOTATOR Heat-transfer Apparatus. This equipment is particularly effective for materials that are heat sensitive, very viscous, or which undergo a physical change during the process. The entire cycle of heating to temperatures of 280° to 290°F, holding, then cooling the product to a predetermined temperature is accomplished continuously in seconds.

Want Information?

Girdler's Votator Division designs and builds complete plants for processing edible oil, food, and many other products; and supplies heat-transfer equipment for continuous processing of liquid and viscous materials. Write for Bulletin V-48, The Girdler Corporation, Votator Division, Louisville 1, Kentucky. District Offices: New York, Atlanta, Chicago and San Francisco.



P-A

GAS SCRUBBERS

- *are stopping
air pollution*
- *and recovering
valuable materials
all over the country*



More than five billion CFD! That's the installed capacity of P-A Venturi and Cyclonic Scrubbers now at work in twenty-six states and 9 foreign countries. These installations . . . all completed within the last four years . . . are proof of the success of Pease-Anthony methods of handling difficult gas scrubbing problems. • Bring your problem to Chemico. Take advantage of our experience in this field. Write to our P-A Sales Department for our specific suggestions. Ask for Bulletin M-102.



CHEMICAL CONSTRUCTION CORPORATION

A UNIT OF AMERICAN CYANAMID COMPANY

488 MADISON AVENUE, NEW YORK 22, N. Y.

CABLE: CHEMICONS, NEW YORK

TECHNICAL REPRESENTATIVES: CYANAMID PRODUCTS LTD., LONDON • CHEMICAL CONSTRUCTION
(INTER-AMERICAN) LTD., TORONTO SOUTH AFRICAN CYANAMID (PTY) LTD., JOHANNESBURG

*Chemico plants are
profitable investments*

RESEARCH

Organized for Altruism

"Invention perpetually repays research—and that research in time advances toward further invention which will pay for still other research, in what may well prove to be a continuous and ever-growing cycle: to harvest only to plant again, often in different fields but always for more research."

That, in essence, is the working credo of Research Corp. Within the past week, Research Corp. "planted" again to the tune of \$120,000 in grants to a score of colleges, universities and scientific institutions.

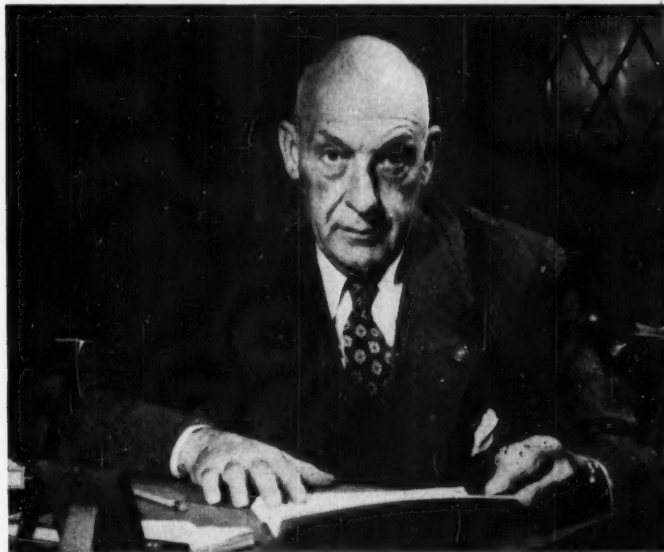
If past form is any indication, the harvest should be bountiful. The \$7 million dispensed in grants over a forty-year period has, at one time or another, nourished the development of a roster of physical scientists that reads like a Who's Who in chemistry and physics. Names like Whitmore, Rabi, Van de Graaff, Kharasch, Urey, Aston, Kendall and others of comparable renown appear on the list. As a group, they account for five Nobel Prizes including this year's award in physics (shared by onetime Research Corp. beneficiaries Felix Bloch of Stanford University and Edward Mills Purcell of Harvard).

What does Research Corp. get from all this? The answer, in terms of ultimate financial gain, is nothing. A non-taxed, non-profit organization, it's devoted, purely and simply, to the furtherance of fundamental research.

Money for this enterprise stems from two principal sources: the corporation's Precipitation Div. which manufactures and installs Cottrell precipitators; and its Patent Management Div. which manages the patent affairs of 46 universities, non-profit foundations, technical societies, etc. (including American National Red Cross, Columbia University, Mayo Clinic and New Hampshire State Planning Commission).

Research Corp. was launched in 1912 by Frederick Gardner Cottrell, noted physical chemist and inventor of the system, which bears his name, of electrical precipitation of particles from gases. The organization's early income was derived exclusively from the licensing of firms to build and install Cottrell precipitators. In later years the corporation set up its own manufacturing branch (Precipitation Div.) at Bound Brook, N.J. Precipitation Div. now employs approximately 300 workers, brings in about \$8 million a year.

Even Split: Second to Precipitation Div. as a revenue-producer is the corporation's patent management activities. Through the Patent Management Div., organized in 1937, it evaluates patents submitted for consideration, files and prosecutes applications and follows up the commercial development and licensing of inventions. Although Research Corp. has no rigid



RESEARCH CORP.'S BARKER: A helping hand when it's needed most.

LYN CRAWFORD—McCRAW-HILL

CHROMALOX

gives you the

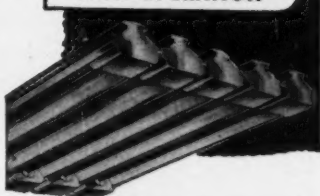
LOW COST
answer to



FAR INFRARED

INFINITELY VARIABLE HEAT

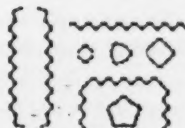
SAFE OPERATION



CHROMALOX ALL-METAL *Electric* RADIANT HEATERS

The new and improved CHROMALOX heating principle gives ALL infrared heat advantages: high heat intensity, "color blind" infrared radiation, heat that's infinitely variable! You get more satisfactory results at reduced costs in baking, drying, curing, preheating and similar uses with CHROMALOX Radiant Heaters.

VERSATILE APPLICATION



Cross-section views of a few of the many open designs possible with Chromalox Radiant Heaters.

Radiant Heater Division 1B-23-A
EDWIN L. WIEGAND COMPANY
7578 Thomas Blvd., Pittsburgh 8, Pa.
I am interested in Chromalox Radiant Heat for _____

☐ Send me Bulletin CS-604 on Radiant Heaters.
☐ Have your Chromalox representative contact me.
☐ Send me Catalog 50 which shows other Chromalox Units.

Name _____ Title _____
Company _____
Street _____
City _____ Zone _____ State _____

CHROMALOX

ELECTRIC HEAT
FOR MODERN INDUSTRY

Have You Investigated

GLUCURONOLACTONE?

now available in
commercial quantities!

Glucuronic Acid is an important structural constituent of essentially all fibrous and connective tissues in animals, and is present in low concentrations in normal blood and urine. It is therefore of vital interest to investigators of body processes, diseases and treatments.

Appearance . . . White, crystalline powder
Odor . . . None
Melting point, °C . . . 172
Specific rotation, (α)_D²⁰ . . . +20° (in H₂O)
Specific gravity, 30/4°C . . . 1.76
pH, initial . . . 3.5 (10% aq. soln.)
Particle size . . . 99% finer than 100 mesh

We can supply commercial quantities of Glucuronolactone, produced synthetically from D-glucose, in 5 lb. and 50 lb. containers.



Chemical  Division

CORN PRODUCTS REFINING CO.
17 BATTERY PLACE • NEW YORK 4

RESEARCH

rule for determining patent service agreements, it does pay all expenses, usually divides royalties over and above the inventor's share (5% to 15%) on a 50-50 basis with the sponsoring institution. Patents on cortisone, synthetic vitamin A, vitamin B₁, pantothenic acid, merthiolate, and ergonovine are but a few of the more than 600 patents and applications (covering 260 inventions) handled by Research Corp.

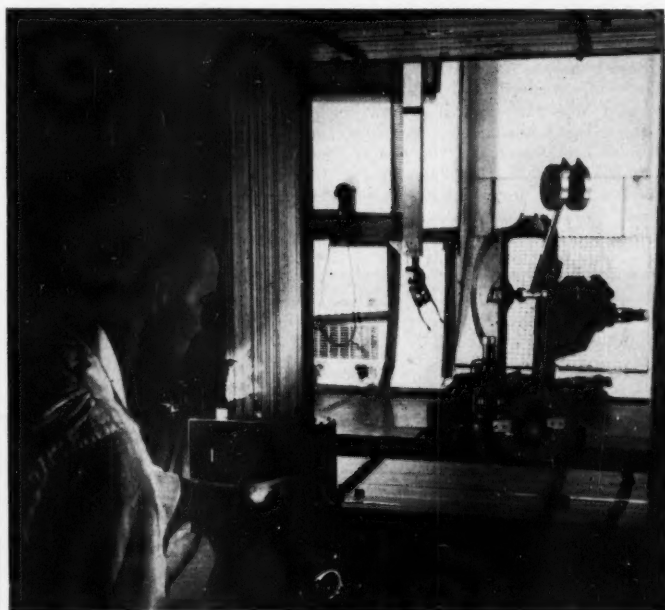
Income from the vitamin B₁ and cortisone patents supports the Williams-Waterman Fund (for the combat of dietary diseases) and a portion of the Kendall-Hench Fund (for endocrinology research).

In its forty years of existence, Research Corp. has parlayed its original endowment—Cottrell's ideal, \$10,000, and a few patents—into a powerful force for the implementation of its program. From his headquarters in a suite of offices on the 38th floor of New York's sky-scraping Chrysler Building, Research Corp. President Joseph W. Barker pilots an organiza-

tion that now gives at the rate of more than \$½ million a year, maintains field offices in Chicago and Los Angeles.

Spreading it Out: The large number of scientists and projects which have received Research Corp. support is a paramount clue to the organization's philosophy of giving. Briefly, the idea is this: Give in relatively small amounts, a few hundred or a few thousand dollars at a time, to projects of potentially great theoretical significance; and give when a boost is vitally needed—in the early stages of research when outside aid often means the difference between continuation and abandonment.

The years have proved the wisdom of this approach. Research Corp. grants spurred the early development of the cyclotron, ultracentrifuge, mass spectrograph, linear accelerator and Van de Graaf generator. And steroid chemistry, synthesis of cortisone, free radical chemistry, photosynthetic studies, heat transfer and molecular beam experiments are striking examples of



Striking While It's Hot

AT THE CONTROLS of materials testing apparatus, Westinghouse technician Michael Sudsina is about to release pendulum-hammer for free-swinging blow at irradiated material in its trajectory. Object: to determine the impact-strength of substances after exposure to nuclear radiation. It's part

of a probe—now under way at A.E.C.'s Westinghouse-operated Bettis Plant (Pittsburgh, Pa.)—of materials for atomic power generators. All physical testing of this type is done by remote control; sheets of plate glass, separated by oil, form the yard-thick, transparent, protective shield.

73% VERSUS 50% LIQUID CAUSTIC SODA



**THIS UNIT CAN SAVE YOU
MANPOWER AND DOLLARS!**

Many volume users of Caustic Soda have realized substantial savings by switching from 50% to 73%. Actually, the expenditure for making this change is small when compared to the excellent returns.

Take the case of one of Columbia-Southern's customers.

This company invested \$3,500 for equipment and its installation to handle 73%. In the first year \$35,100 in savings were realized, *a return of 1003% in the first year alone!*

Furthermore, the manhours required to handle the unloading were considerably reduced because fewer cars were needed to supply the same tonnage of Caustic.

The operation used to save both manpower and

dollars is the Columbia-Southern patented process that incorporates unloading and diluting in a single operation. The assembled unit (note illustration) is compact and relatively inexpensive.

Columbia-Southern's technical service staff will be glad to make recommendations regarding the cost and location of an unloading unit as well as assist with the unloading of the initial shipment.

Shipments of 73% are made in Columbia-Southern's specially designed tank cars that have a patented lining which prevents metallic contamination in transit. Also, these cars have the fusion welded tank, improved insulation, and many other features.

Write today for further information on how you can save with 73% caustic!

**COLUMBIA-SOUTHERN
CHEMICAL CORPORATION**

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY



EXECUTIVE OFFICES: FIFTH AVENUE AT BELLEFIELD, PITTSBURGH 13, PA. **DISTRICT OFFICES:** BOSTON • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • HOUSTON • MINNEAPOLIS • NEW ORLEANS • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO

November 22, 1952 • Chemical Week

ALL RUBBER DRUM

SAFE AND EASY TO HANDLE!
NO METAL
NO BREAKAGE



for

- MURIATIC ACID
- HYDROFLUORIC ACID
- FERRIC CHLORIDE
- CORROSIVE LIQUIDS

★

ICC-43A SPEC.
Tare Weight—34 lbs.
13 gallon capacity

★

Made with
Natural, Neoprene,
Butyl or other Synthetic
Rubber Linings

★

Threaded or Stopper type closures



THE GENERAL TIRE & RUBBER COMPANY

MECHANICAL GOODS DIVISION
WABASH, INDIANA

Distributed by THE C. P. HALL CO.

5147 W. 67th St. • CHICAGO 38, ILL.
AKRON, O. • CHICAGO, ILL.
NEWARK, N. J. • LOS ANGELES, CAL.

RESEARCH

fields which have received support that was important more for its timing than its dollar value.

Since 1912, many hundreds of projects have been supported; at present, nearly 400 grants are active. Scientific feasibility and individual merit of each proposal are the deciding factors. And there are no strings attached to grants. Discoveries arising from Research Corp. grants are the property of the university or research organization in

which the work was performed. If they so desire, however, these institutions can make a deal with Patent Management on commercially promising developments. But Research Corp. bends over backwards to make one point crystal-clear: Its sole interest is the promulgation of scientific achievement through research; a grant carries no obligation, expressed or implied, for subsequent patent or royalty agreements.

Push-Button Analysis

Nuclear particles are the new look in analytical reagents. Neutrons are the mainstays of a new micro-analytical device unveiled at Stanford Research Institute; protons make possible an equally new impurity-detecting technique developed by Union Carbide's Oak Ridge National Laboratory researchers.

Both methods by-pass chemical agents and chemical procedures, are more sensitive than established chemical and physical analytical methods. But they determine elements only, give no further qualitative information.

Carbide calls its brainchild "neutron-activation analysis," is offering it as a service—by arrangement with Atomic Energy Commission—to industrial, scientific and medical organizations. The technique, according to the company "can be of practical value in determining minute quantities of elements in biological substances; pharmaceuticals; fertilizers and feedstuffs; fine chemicals; foods and food additives; glass and ceramic materials; insecticides and disinfectants; metals and alloys; plastics and resinous materials;" and a host of other substances.

Here's how it works: The test sample is exposed to neutron bombardment in the Oak Ridge graphite reactor. Impurities are thus made artificially radioactive, can be detected and measured with great accuracy by instruments specially designed for the job.

Specificity is, perhaps, neutron activation's chief attribute. Irradiation produces artificial isotopes which emit characteristic radiation, have distinct patterns of radioactive decay. The characteristics of one radioactive isotope are never duplicated by another.

Other advantages of the method: It practically eliminates the possibility of contamination, except when the sample material contains a large quantity of elements which are strong neutron absorbers; traces of elements too minute for detection by other methods can be determined; it permits exami-

nation of larger samples than ordinarily used in conventional methods.

Credit for the new analytical advance belongs to Activation Analysis Group of the National Laboratory's analytical chemistry division. Commercialization is under the aegis of Radioisotope Control Department of the Laboratory's Operations Division), will be handled in a manner similar to the radioactive isotope distribution plan.

Proton Bounce: Much of what Carbide does with neutrons, Stanford accomplishes with protons. The Stanford technique hinges on a \$200,000 instrument tagged "Proton Bombardier," which bounces a stream of protons off the surface of a sample substance. Protons reaching the nuclei of surface atoms bounce off with a characteristic velocity; the heavier the atom, the greater the proton-rebound velocity. Rebounding protons are deflected by a magnetic spectrometer, pass through a counting device which gives the proportional elemental composition of the sample. The result finally appears in the form of a recorded curve giving all elements found and their relative proportions.

A non-destructive technique, proton bombardment can detect as little as a trillionth of a gram of an element. Its first job will be in the testing of alloys for Army Ordnance Department. Stanford visualizes industrial applications in studies of lubricants, coatings and finishes, and in the analysis of surface contaminants and minute unknown substances.

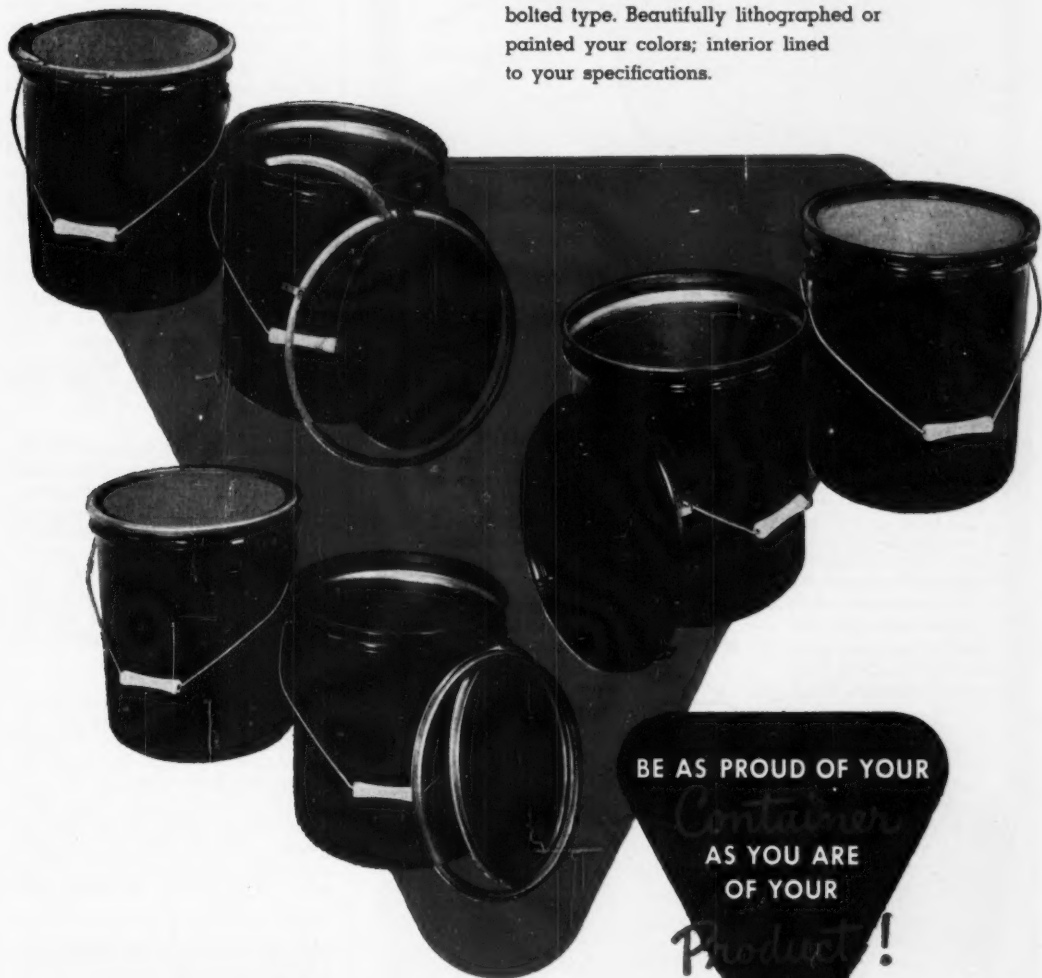
One-Up on ACTH: A new drug, called "a new version" of ACTH, but cheaper and more active than the latter is now being produced for clinical evaluation by Nordic Biochemicals, Montreal. The substance has been tagged Acton X, is reported to be relatively free of most of the untoward side-effects associated with ACTH. Just how the new drug differs from ACTH is not completely clear. Ap-

OHIO

Steel

PAILS

- Your choice of cover style—Lug, Ring Seal, or Re-Seal, either the lever or bolted type. Beautifully lithographed or painted your colors; interior lined to your specifications.



BE AS PROUD OF YOUR
Container
AS YOU ARE
OF YOUR
Product!

the

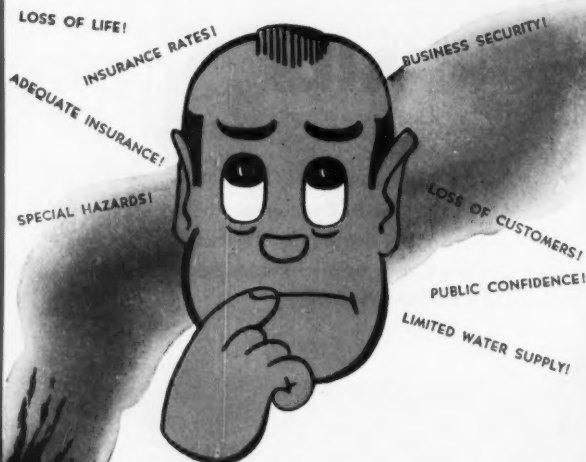
Ohio

Corrugating Company

WARREN, OHIO

Offices in Principal Cities



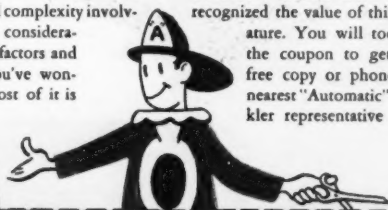


CONSIDERING FIRE PROTECTION?

THE COMPLETE STORY . . .
... YOURS FOR THE ASKING!

You've undoubtedly pondered from time to time on the value of fire protection. You've heard that certain types of fire safety can save you money . . . that sprinkler systems pay for themselves. Yes—you've probably heard a lot about fire protection but because of the technical complexity involving economic considerations, security factors and application, you've wondered what most of it is about.

That's why we published "The ABC of Fire Protection." It's a comprehensive book that contains all the facts and—they're presented in a manner understandable by the layman—sufficiently defined for an exacting technician. Insurance interests have readily recognized the value of this literature. You will too! Use the coupon to get your free copy or phone your nearest "Automatic" Sprinkler representative today.



"AUTOMATIC" SPRINKLER
CORP. OF AMERICA
P. O. BOX 380
YOUNGSTOWN 3, OHIO

Please send in your Bulletin 55,
"The ABC of Fire Protection"

Name _____
Title _____
Company _____
City _____ Zone _____ State _____

"AUTOMATIC" SPRINKLER CORPORATION OF AMERICA
YOUNGSTOWN, OHIO
OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

"Automatic" Sprinkler

FIRST IN FIRE PROTECTION

RESEARCH

parently, it's a highly purified form of the pituitary hormone. Evidence: Nordic Biochemicals opines it is "the only pharmaceutical firm in North America which has removed most of the impurities from ACTH." For the present, at any rate, Acton X is not available outside of Canada.

Isotope Confab: An intense interest in radioactive isotopes, on the part of Continental scientists, was clearly evident at a recent symposium in West Germany. More than 160 scientists, representing five European countries, flocked to Frankfurt last week to hear of new research methods in the field of radioactive isotopes.

Individualized Service: Researchers of Ethyl Corp. (New York, N.Y.) report a new laboratory method for the study of factors (volatility of fuels, carbon-hydrogen ratio, etc.) causing combustion chamber deposits. It's based on a specially designed, single-cylinder test engine which permits an appraisal of the effect of any one factor in the complex combustion system. The method, according to Ethyl Corp., gives results which agree with those obtained in vehicle road tests.

Milestone: API 44, American Petroleum Institute's research project devoted to the identification and characterization of the chemical constituents of petroleum, has reached a milestone in its development. Now ten years old, the study—currently headed by Carnegie Tech's Frederick Rossini—has resulted in the charting of 100,000 physical and chemical properties for 1,000 compounds.

TB Aid: A fleeting glimpse of chemotherapeutic research behind the Iron Curtain is gained from a new report of Polish anti-TB experiments. Workers at Medical Academy (Cracow) claim promising results in clinical tests of hydroxamic acid derivatives. As adjuncts to streptomycin, the hydroxamic acids produced beneficial effects in a limited group of tuberculosis cases.

Branching Out: In a major reorganization of its foreign research set-up, Arthur D. Little, Inc. (Cambridge, Mass.) has just established an international Division. The new branch will coordinate the company's activities abroad, which now include: technical counseling to the governments of Puerto Rico and Jamaica; technical and economic surveys in Egypt, Haiti and Newfoundland; plant location studies in Mexico; and miscellaneous



Put Your Power Costs and Performance in Order



FAIRBANKS-MORSE DIESELS CAN BE YOUR

Power Keys

Here are the keys that have opened the way to adequate, reliable power for many plants—small and large. They have eliminated the penalty paid due to poor power factor, surge loads and adverse current characteristics.

But, Will They Fit Your Problem?

Look at the list! Would compact in-plant power generation unlock your plans for plant expansion... eliminate the need of using purchased power at

rates based on *high* peak demand values... add to current capacity? The answer is yes—and it can mean the difference between profit and loss in your plant.

If you are seeking the keys to your power problem, write us today, outlining your needs. Fairbanks-Morse engineering can give you a *proved* answer... based on over 50 years' experience in industrial and municipal power generation. Fairbanks, Morse & Co., Chicago 5, Ill.



FAIRBANKS-MORSE,

a name worth remembering when you want the best

DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • ELECTRICAL MACHINERY • PUMPS • SCALES • RAIL CARS • MAGNETOS • FARM MACHINERY

- 1 **Handle Peak Demand**... reduce peak demand values for lower purchased power rates.
- 2 **Power Factor**... in-plant power generator can eliminate power factor penalties.
- 3 **Emergency Power**... insurance against lost production and damage resulting from line failures.
- 4 **Handle Surge Loads**... that may now be affecting current characteristics of entire plant.
- 5 **Plant Expansion**... need not be restricted due to lack—or expense—of ample power.
- 6 **Useful Heat**... lube oil, water and exhaust heat can be turned from waste to profit.
- 7 **Chemical Value**... exhaust gases are high in free nitrogen—available for economical fixation of nitrates, ammonia, etc.
- 8 **Insurance Advantage**... of diesel over gasoline engine, for example, will soon pay for installation.
- 9 **No Weather Worries**... ice, snow, sleet, wind storms can't stop plant operations.
- 10 **Handle Increasing Load**... in-plant power economically adds to current capacity as loads increase.
- 11 **Fuel Economy**... use diesel oil, natural gas or sewage gas for added economy.
- 12 **Remote Locations**... distance from transmission lines needn't curtail plant expansion.
- 13 **More Compact Power**... Fairbanks-Morse engines give you more power per foot of floor space, more power on present foundation.
- 14 **Minimum Attendance**... Fairbanks-Morse in-plant generating sets require far less supervision or maintenance.
- 15 **Save Cost**... of running in new line where present transformers and power lines are already loaded.

FAMOUS NAMES among the users of SPARKLER FILTERS for pharmaceuticals



ARMOUR
Laboratories

Schenley

SEARLE



Wyeth

THE WILSON LABORATORIES

Few other industries require the painstaking supervision, accuracy, or sanitation that is necessary in the production of drugs used to perform "everyday miracles." Yet in spite of this, each of the companies whose trade mark is shown above, day after day, year after year, produces pharmaceuticals that never meet anything less than the highest standards of purity.

Of course, the plants operated by these companies are models of precision, planned to achieve the greatest possible efficiency with the finest equipment available. That's why, in each of these plants, you will find Sparkler filters handling difficult liquid filtration jobs.

It is important to remember that Sparkler filters were designed with the same goals in mind—accuracy and sanitation—that are accepted as a fundamental part of the drug industry. They utilize the patented Sparkler horizontal plate principle to provide firm support for the filter media and filter aid. This horizontal surface permits the formation of a stronger, completely uniform cake that will not slip or crack even under intermittent operation. Thus, filtration quality through the entire cake is constant, and can easily be regulated by varying the cake density.

Plates are assembled one above the other and are fastened together in car-

tridge form, making it extremely simple to remove them from the filter for cleaning. Other Sparkler features include compact, neat design, high flow rates and low operating cost.

For full information, write to Mr. Eric Anderson. New catalog is available on request.



SPARKLER MANUFACTURING COMPANY, Mundelein, Illinois

Sparkler International Corp.
Beverly Hills, California, U.S.A.

Sparkler Filters Company Ltd.
London, W. 1, U.S.A.

Manufacturers of the Sparkler system for more than 20 years in all countries.

RESEARCH

work in Canada, Japan and India.

A. G. Haldane, former deputy assistant director of U.S. Commerce Dept.'s Office of International Trade, will head the new division.

Latest Word: The Du Pont Co. will begin preparing the Wilmington (Del.) site for its new \$5-million textile research laboratory (CW, Sept. 27) sometime next month. The new facilities will consolidate Du Pont's textile research activities which are now carried on at four separate locations in the Wilmington area. Actual construction, however, must await the go-ahead from NPA.

Substitution: Common salt can be substituted for Glauber's salt (sodium sulfate) in the acid-dyeing of wool. That's the conclusion arrived at on the strength of research sponsored by American Assoc. of Textile Chemists and Colorists at Lehigh University.

Discovery: Alpha-chloroacetamide could add plastics manufacture to its list of industrial outlets. According to Chemical Development Corp. (Danvers, Mass.) the compound has proved effective as an acid-type catalyst for urea-formaldehyde, melamine-formaldehyde and related resins. The material now has applications in the photographic industry and in the synthesis of intermediates for pharmaceuticals, dyes and surface active agents.

Wholesale Award: History was made by U.S. Patent Office this month with the issuing of 85 patents in one fell swoop to researchers of Philips Laboratories, Inc. (Irvington, N.Y.) and its European counterpart, N. V. Philips Gloeilampenfabrieken of Holland. The patents—in electronics, mechanical engineering, and chemistry—constitute the largest block ever issued at one time in the U.S. to a single assignee.

Emphasis on Appearance: A new consulting group devoted to appearance and related optical properties of materials is making its debut. It's Hunter Associates Laboratory (Falls Church, Va.), reported to be the first of its kind. Slated for operation by the first of next year, the new organization will specialize in advice on appearance instrumentation, tests for appearance properties (e.g. color, reflectance, turbidity, opacity, etc.), designs of appearance-testing instruments and development of procedures for testing, inspecting and—in some cases—automatically controlling the appearance properties of manufactured materials.

Hooker Chemical Guide (ONE OF A SERIES)

USE this handy reference to save time
in selecting high quality chemicals.

HOOKER SODIUM BENZOATE BENZOIC ACID

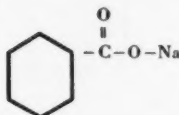
A GRADE TO FIT YOUR NEEDS, USP OR TECHNICAL

SODIUM BENZOATE USP and Technical

Synonym: Benzoate of Soda

Formula: C_6H_5COONa

Appearance: White, odorless, crystalline solid, sold in flake or powdered form.



TYPICAL PROPERTIES

USP GRADE

Molecular Weight	144.1
Sodium Benzoate	99+ %
Benzoic Acid	0.2% max.
Water	0.5% max.

Description: Meets all chemical and physical requirements of U.S. Pharmacopoeia XIV.

TECHNICAL GRADE

Molecular Weight	144.1
Sodium Benzoate	98% min.
Benzoic Acid	0.4% max.

Description: Does not quite meet the requirements of U.S. Pharmacopoeia XIV.

USES

Food Preservative: foods, fruit juices, syrups, margarine.

Antiseptic: pharmaceutical and cosmetic preparations, tooth paste.

Tobacco Curing

Corrosion Inhibitor: for glycol antifreeze solutions, solvent type metal cleaners, etc.

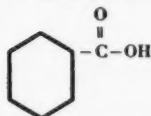
Chemical Intermediate: dyestuffs and pharmaceuticals.

BENZOIC ACID USP and Technical

Synonyms: Benzenecarboxylic Acid
Phenylformic Acid

Formula: C_6H_5COOH

Appearance: White, crystalline solid, USP grade is available in powder form. Technical grade is available either in powder form or in the form of very small bead-like particles.



TYPICAL PROPERTIES

USP GRADE

Molecular Weight	122.1
Benzoic Acid	99.3% min.
Water Content	0.2% max.

Description: Meets all chemical and physical requirements of U.S. Pharmacopoeia XIV.

TECHNICAL GRADE

Molecular Weight	122.1
Benzoic Acid	98.0% min.
Water Content	0.2% max.

Description: Does not quite meet the chemical and physical requirements of U.S. Pharmacopoeia XIV.

USES

Chemical Intermediate: dyestuffs, perfumes, pharmaceuticals, benzoates, flattening agents for paint.

Preservative: for textile sizing, foods, cosmetic creams, lotions.

Antiseptic: for dentifrices and pharmaceuticals.

Tobacco Curing

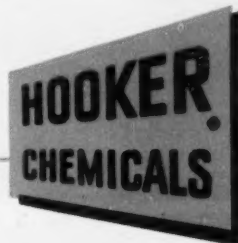
Dyeing Assistant: for polyglycol terephthalate fibers (Dacron). Benzoic acid has a swelling effect on some of the new synthetic fibers. This gives better dye penetration with resulting level, long lasting color.

For detailed information on items listed, drop us a note on your letterhead. Address your request to
HOOKER ELECTROCHEMICAL COMPANY, 3
Forty-Seventh Street, Niagara Falls, N. Y.

HOOKER ELECTROCHEMICAL COMPANY

NIAGARA FALLS, N. Y. • NEW YORK, N. Y.
TACOMA, WASH. • CHICAGO, ILL. • WILMINGTON, CALIF.

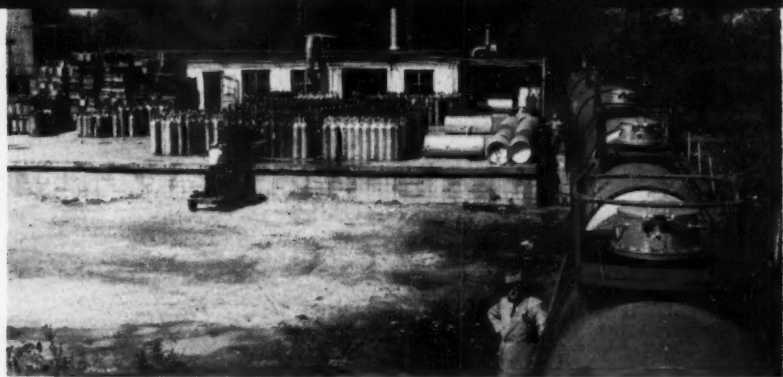
From the Salt of the Earth



2-326

DISTRIBUTION

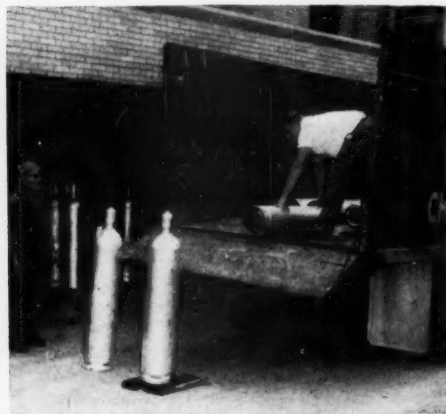
Buy in Tank Cars, Sell in Cylinders



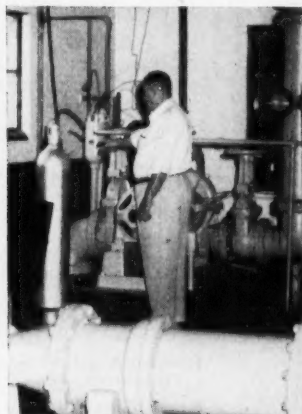
1 THE JOHN WILEY JONES CO. PLANT at Indianapolis, Ind., unloads tank cars and fills its cylinders or ton-tanks in a one-step operation. It services local cylinder market.



8 INSPECTION of cylinders is a necessary safety measure.



4 DISTRIBUTOR'S TRUCK stops at nearby Frankfort Water Co., typical municipal chlorine customer.



5 EQUALIZING temperature of cylinder and pumproom is a ...

Chlorine Distributor Expands Market

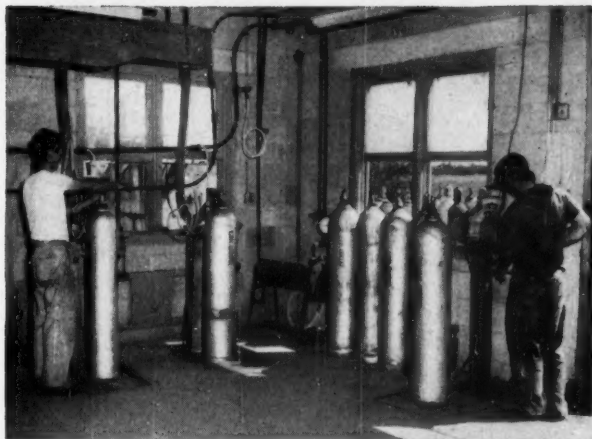
Buy a tank car of chlorine, assemble a stack of cylinders, pour the liquefied gas from one into the other, and theoretically you are all set to go into the business of marketing cylinder-chlorine. But unfortunately it isn't quite so simple. There's evidence for that in the relatively small number of non-producer concerns which have successfully ventured into this part of the chemical-distribution picture—in spite of the active withdrawal by some of the major chlorine producers from the less-than-tank-car market.

But one of these successful few, and one of the pioneers in the field, is this week putting the final touches on its fifth plant. John Wiley Jones Co. is

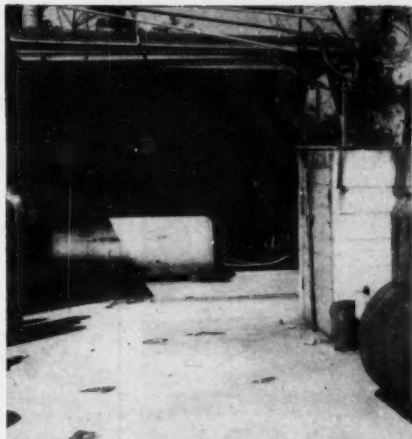
adding Charlotte, N.C., to its cross-country chlorine coverage.*

As a buyer, and distributor, of a good many tank cars of chlorine a month, bustling John Wiley Jones, president, is justly proud of his new expansion. But he makes no attempt at minimizing the difficulties which beset entrepreneurs entering into the chlorine-cylinder business. He is especially vocal on the point because, as he says, "this is the most misunderstood part of the entire chemical industry. No other kind of enterprise looks quite so attractive at first glance—nor quite

* Other plants: Jacksonville, Fla.; Torrance, Calif.; Indianapolis, Ind., and Caledonia, N.Y. The pictures on these pages were taken at the Indianapolis location.



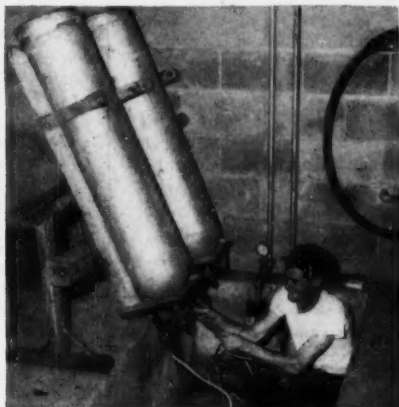
2 FILLING THE CYLINDERS is a cautious operation. "Blow-off" chlorine gas is used to make "Sunny Sol" sodium hypochlorite bleach.



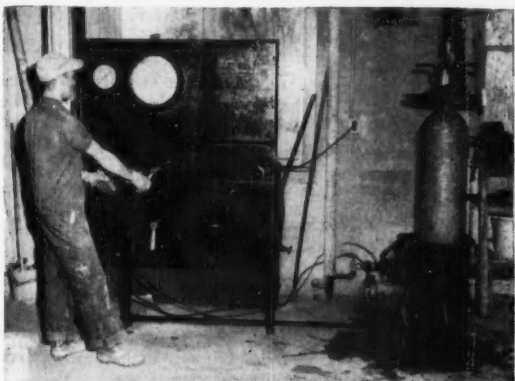
3 THE TON-TANKS present similar problems, except that even more gas must be vented.



6 SERVICE TIP (it prevents internal condensation) supplied by salesman. Here Supt. Adkins explains chlorinating unit to Frankfort's mayor.



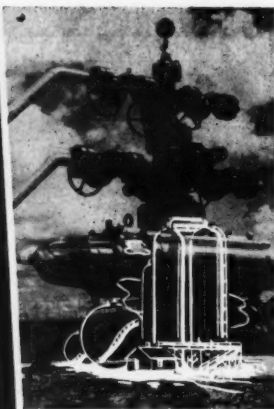
7 BACK AT PLANT, emptying cylinders before refilling means more Cl_2 for bleach production.



9 GOVERNMENT REGULATIONS must be met in checking the cylinder inventory. This is 800# water-pressure test.



10 MULTIPLICITY of customers and containers means expensive record keeping.



OKLAHOMA FUEL

The availability of dependable and economical industrial fuels increases Oklahoma's stature in providing an abundant supply at a great savings. Ranking third in the U. S. in the production of liquefied petroleum gases; fourth in petroleum, natural gas and natural gasoline; and fourteenth in coal; Oklahoma's cost of industrial fuels is considerably less than found in cities far removed from their sources. Chemical by-products of those fuels, such as plastics, synthetic rubber, nylon and detergents to name a few, are derived from the rapidly expanding petroleum-chemical industry.

Mineral Resources—

Oklahoma is the new frontier in the nation, ranking sixth in the value of mineral production . . . proven reserves of lead, zinc, glass sand, volcanic ash, limestone and gypsum are available in unlimited quantities to industry.

For a special confidential survey report relating to your own business, write . . .



**Make More Money
IN OKLAHOMA**

DISTRIBUTION

so dismal after taking a second look."

Capital and Caution: Jones backs up this statement by pointing his finger at the following facts of chlorine-cylinder life:

- Filling cylinders and ton-tanks is a hazardous operation, calling for skilled personnel and elaborate safety measures.

- The distributor has to carry the full capital weight of his cylinder supply. A custom of the trade dictates, in many cases, a policy of not demanding a deposit for the chlorine container. At \$30 a cylinder, and with a large inventory tied up in the consuming plants, this becomes a back-breaking burden.

- Clerical and service expenses are high—and irreducible. The average customer is small, yet he expects a maximum of assistance in the handling of what, to him, is a dangerous and foreign material. Moreover, the distributor, with a large proportion of his capital tied up in cylinders, is forced to keep track of them by maintaining voluminous clerical records.

- Unlike the chlorine producer, the distributor-filler of chlorine cylinders must dispose of large quantities of "blow-off" chlorine. John Wiley Jones solves this problem by making sodium hypochlorite ("Sunny Sol" brand), but disposing of the hypochlorite acts as an effective damper on the expansion of the cylinder-filling side of the business. They must both grow together.

Bleach Beginnings: One reason that Jones has been able to overcome these major stumbling blocks lies in the early history of his company. He got his start in the troublesome bleach end of the chlorine-bleach tandem—which is much easier than trying to develop a bleach market after entering the business on the basis of chlorine outlets.

Moreover, his first plant, at Caledonia, N.Y., was largely an outgrowth of the dynamite enterprise which his father had sold to Atlas Powder a few years before Jones started operations in 1930. This gave him a background of experience in the handling of dangerous materials.

With sodium hypochlorite as his first product, Jones soon found himself supplying those municipalities that were hypochlorinating their water supplies. As these towns grew, and converted over to chlorinating mechanisms, Jones added cylinder chlorine to his product line. Soon the tail was wagging the dog and the company's "Sunny Sol" sales were a secondary—but essential—part of the operations.

Westvaco this year sold its small-container business—lock, stock, and cyl-

inder—to the Jones company. It seems that sometimes it's just not practical for a large producer to handle the grass-roots selling and servicing called for in the cylinder-chlorine trade.

Jones' new plant, however, proves that there is room for an aggressive selling job by an independent distributor—provided that he recognizes the problems and forthrightly solves them.

Do's and Don'ts

The two committees* whose research resulted in the lifting of calcium ammonium nitrate fertilizer shipping restrictions (CW, *Market Letter*, Nov. 15) had several safety recommendations to make.

Referring specifically to "calcium ammonium nitrate fertilizer, a homogeneous mixture of approximately 60% ammonium nitrate and 40% limestone and/or dolomite—20% nitrogen content," the report recommended, and the Coast Guard adopted, these do's-and-don'ts:

- "If the material is shipped in bulk and becomes caked in the hold of a ship, it is not safe to break up the caked material by blasting with explosives."

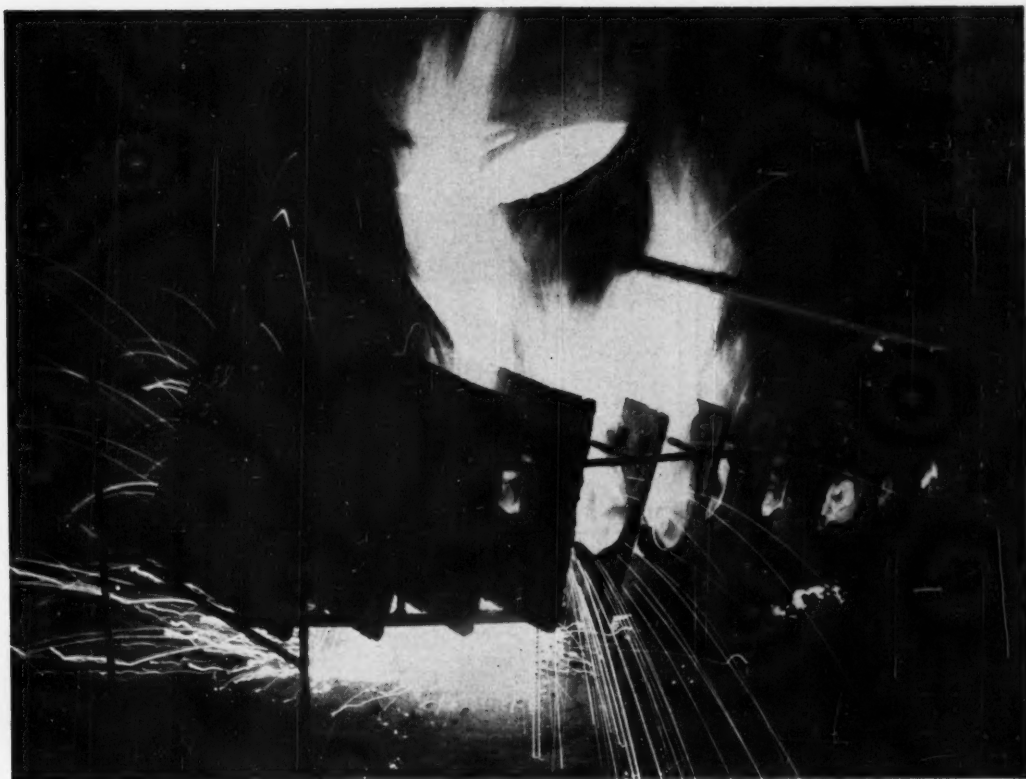
- "When fighting a fire in which these materials are involved, the fire should be flooded with a large amount of water, since it is not possible to extinguish such fires with steam or other smothering agents. The presence of the nitrate provides sufficient oxygen to support a fire even though air is excluded."

- "As in the case of all stowage of oxidizing materials, including all nitrates of this character, the amount of combustible dunnage used should be kept at a minimum in order to reduce the extent and intensity of a fire, should one start in the hold where this material is stored."

Additive Agent: The Tiona Petroleum Co. (Philadelphia, Pa.) has been named as the exclusive export sales representative for petroleum additives manufactured by the Carlisle Chemical Works of Reading, Ohio.

Sacks with Sound: A documentary 16 mm sound film has been produced by New York's Hudson Pulp and Paper Corp. as an instructive medium for users of industrial bags. Entitled "From Pines to Multiwall Sacks," the movie purposely underplays any company-promotion aspects.

*One, an "interagency committee," was formed by the Secretary of the Treasury in 1947 shortly after the Texas City disaster. The other was a special committee from the National Academy of Sciences. The latter did the basic research on the problem.



Photograph by courtesy of The Cooper Alloy Foundry Co.

Here's a close-up view of one of the most closely-guarded industrial secrets in years: Shell Molding. This picture shows the pouring operation at The Cooper Alloy Foundry Co., Hillside, N. J.

Can HCHO Remold The Foundry?

The most exciting foundry technology news in many years has been the recent announcement of a revolutionary new process called "Shell Molding." Like so many ideas that have proved revolutionary, "Shell Molding" is, basically, a simple idea.

The key to this new process is a thin mold of sand called a "shell mold." Molten metal is poured into this mold as shown in the picture above. The binder used to hold this sand together is phenolic resin. By adding just five percent phenolic resin to sand, this revolutionary new process became a reality.

As a supplier of HCHO used to prepare phenolic resins, Spencer Chemical Company has been intensely interested in this new foundry development. Formaldehyde . . . phenolic resins . . . shell molding. It's one more example of the limitless frontiers of chemistry; an inventive triumph so revolutionary that it may not only remold the foundry, but may actually remold an industrial way of life.

SPENCER PRODUCTS: Anhydrous Ammonia • Refrigeration Grade Ammonia • Aqua Ammonia • Methanol Formaldehyde • "Mr. N" Ammonium Nitrate Fertilizer SPENSOL (Spencer Nitrogen Solutions) • 83% Ammonium Nitrate Solution • FREZALL (Spencer Dry Ice) Liquid Carbon Dioxide.



America's Growing Name In Chemicals

Executive and Sales Offices, Dwight Bldg., Kansas City, Mo.
Works: Pittsburg, Kan., Henderson, Ky., Chicago, Ill.,
Charlestown, Ind., and Vicksburg, Miss. (Under construction.)

VEGETABLE OILS

- CASTOR OIL
- RICE BRAN OIL
- RAPESEED OIL
- MUSTARD SEED OIL

TANK CARS
TANK WAGONS
DRUMS

George Degen & Co.
INC.

111 Broadway, N. Y. 6, N. Y.

Nitrates

Potassium

Sodium

Barium

D

DAVIES NITRATE CO. INC.
118 LIBERTY STREET
NEW YORK 6, N. Y.

SPECIALTIES....



1 JAMES E. SEYMOUR, research chemist for Illinois Farm Supply Co., in his lab where he devised his fertilizer-making techniques using surface-active agents.

Quick Cure for Fertilizers

Of prime interest to fertilizer manufacturers, but almost as vital to makers of surface-active agents is the news that the Illinois Farm Supply Co. (East St. Louis, Ill.) is using Santomerse 1 in its fertilizer manufacture (CW Newsletter, Nov. 8).

For the plant food producers, faced with the pleasant prospect of a continued zooming demand, but impeded by a slow process and seasonal sales, the new technique offers a way to speed up and level out production; for use of a proper surface-active agent can often cut the curing phase of fertilizer manufacture from one month to three days.

For the chemical makers, this same vaulting need for fertilizers (pre-war yearly usage was about 7.8 million tons; it had shot to 18 million by 1950, should reach 19 million tons this year) could mean a market for close to 20 million pounds of surface-active agents at the one-pound-per-ton requirements now found effective.

And for the farmer, it means a free-flowing fertilizer that will not lump

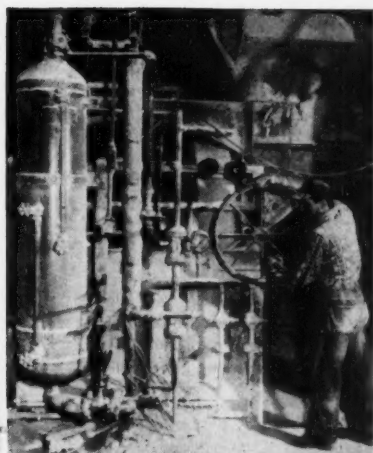
when stored, and will always run smoothly through his planting and fertilizing machinery.

Slow Steps: A look at the steps in superphosphate fertilizer manufacture shows how much of a boon the surface-active agents can be:

Primary ingredient of a "super" fertilizer is the super, made by reacting phosphate rock with sulfuric acid, and letting it age. This super is then mixed with potash, and ammonia, usually in a water solution (or anhydrous ammonia, ammonium sulfate, or a mixture of two or all three). A ponderous cement-mixer type machine blends the super and the ammonium ion source—so that the free acid in the super is eventually ammoniated.

The major part of this ammoniation reaction takes place when the mix is transferred to a bin, to "cure in a pile," ordinarily a two-week to four-month process, after which the fertilizer is ready for shipment.

But the pile curing is a slow process, results in a concrete-like mass that must be broken up for use. Further—



2 BATCH BLENDER: Phosphate, potash, ammoniating solution plus surfactant.



3 FREE-FLOWING even in the curing bin, fertilizer is easy to handle.



4 DIFFERENCE in bagged fertilizers made with a surface-active agent (right, four-day cure) and without (left, 30-day cure) is apparent in this photograph.

and this is an important consideration, since most plants must almost shut down while the curing bin is filled, and bagged material hasn't moved out—it takes up a vast amount of space.

Super Active: That's where the surface-active agents come in. By adding them at the mixing phase, in 0.05% concentrations, more complete and uniform wetting is achieved—less water is required, and the ammoniation reaction is faster, more complete. This means less space tied up waiting for the curing. And by cutting curing time to a tenth of what it was before, the production cycle is leveled out.

There's another advantage. Sometimes the curing is not complete. When dug (or blasted) out for bagging, variably ammoniated ingredients in contact with each other react. The result: a sort of further curing, in which the contents form a rocky mass again. These packaged tombstones are hard for the dealer to sell, and impossible for the farmer to use in his drill

(planting and fertilizing device) without time-consuming pulverizing.

IFSC materials have shown a remarkable resistance to this caking, even when oven-dried, or when stored in locker plants at temperatures from 20 to -30F.

Lab Approach: Major credit for the development of the new technique goes to James E. Seymour, of IFSC, a co-op affiliated with the Illinois Agricultural Association. Seymour researched the possibilities of surface-active agents in fertilizer-making in the late summer of 1951, and since October of that year, all IFSC soil builders (tradenamed Gro-Flo) have included Santomerse 1.

Seymour reported his test results—more than 25 surface-active agents were tried—and manufacturing success to the American Research Assn. meeting at Osage Beach, Mo., last month. It apparently took many other fertilizer makers (and surface-active agent producers) by surprise, although West

BORIC ACID

BORAX AND
OTHER BORATES

BORIC ACID
Technical
U. S. P.

Crystal
Granular
Powdered
Impalpable
Anhydrous

Special Quality
C. P. +

Granular
Powdered

BORAX

BORAX 5 MOL.

ANHYDROUS BORAX

BORAX GLASS

AMMONIUM BIBORATE

AMMONIUM PENTABORATE

POTASSIUM PENTABORATE

SODIUM METABORATE

ANHYDROUS RASORITE*

RASORITE SPECIAL CONCENTRATES

FERTILIZER BORATES*

(Regular and High Grade)

HERBICIDES

BORASCU®

BORASCU-44®

CONCENTRATED BORASCU®

POLYBOR®

POLYBOR-CHLORATE®

POLYBOR-CHLORATE 88®

*Sodium Borate Concentrates which offer economical sources of Sodium Borate for special applications.

**INFORMATION, SAMPLES AND BULLETINS
SENT PROMPTLY ON REQUEST**

**PACIFIC
COAST
BORAX CO.**

DIVISION OF BORAX CONSOLIDATED, LIMITED

**NEW YORK • CHICAGO
LOS ANGELES • CLEVELAND
PHILADELPHIA**

Ottasept

improves Soaps, Shampoos,
Skin Lotions, Detergent Mix



ADD VALUE to your hand soaps, pharmaceuticals, and cosmetics with Ottasept, germicide and fungicide. Pot-

ent and non-toxic, Ottasept is easy to formulate. It's non-staining, colorless, 100% active ingredient. Requires no license or new drug application when used externally.

OTTAFACT. Ottawa Chemical also offers Ottafact, a potent, non-toxic companion germicide. Used for disinfectant solutions, pine oil and scrub soap formulations.

SAMPLES. Write today for samples and data sheets for each.

The OTTAWA CHEMICAL COMPANY

817 Hamilton Str., Toledo 7, Ohio

SAVE MORE ! PROTECT YOUR PRODUCTS



with **POLYETHYLENE LINERS & BAGS**

Made of "VISQUEEN" Film (Prod. of the Visking Corp.; Guard. by Good Housekeeping Mag.). Lightweight, tough, non-toxic, non-rusting, non-shatterable, non-corrodable, odorless, tasteless. Durable, waterproof. Resistant to oils, alcohol, chemicals & solvents at room temperature. Made to your spec's. New, LOW prices!

TRANSPARENT BARREL or DRUM COVERS

Tough Vinyl with elastic. Fits drums, barrels from 5 to 75 gal. capacity. Prevents materials from exposure to the elements after opening of container. Time & Money-saving! Better service than wooden barrel-heads or drum lids.

PRACTICAL, PROTECTIVE UTILITY APRONS

Heavy gauge tough vinyl. Easy to clean with damp cloth. Won't crack, peel. Full cut protects clothes. Colors: Black, brown, white or clear. 50 or more: 75¢ ea. Less than 50: \$1.00.

LET US SOLVE YOUR PACKAGING PROBLEMS!

PELAMAY Products

112 4th Ave., N.Y. 3, N.Y. GR 7-8468

SPECIALTIES

Coast mixers reportedly have been quietly using Oronite detergent, about 1 part-per-thousand, for four or five years. In recent weeks, though, surface-active agent salesmen have been rapping on the doors of superphosphate makers.

For the whole process is available to the industry. At a cost boost of about 15¢ per ton, a "non-setting up" product can be turned out at a fraction of the trouble experienced before.

There have been other methods of speeding up fertilizer manufacture. One such procedure, to shorten the aging time of the rock phosphorus-sulfuric acid mixture, is termed gran-

ulation of the superphosphate. In the Davison variation of this (Oberphos process is also used), the crude superphosphate goes through a step where it is subjected to water sprays to form granules, which are then heat dried. Aging is cut from 8-10 weeks to about ten days.

Curiously, the co-ops appear to have stolen a march on the rest of the fertilizer world. Several in the Midwest this fall are advertising surfactant-containing material. But with the help of the surface-active agent makers, it looks as if it won't be long before the rest of the trade is actively employing these materials too.



RUG REJUVENATOR: Aerosols for on-the-spot color changes.

Bonanza in Canned Color

Hitching to a bandwagon is pretty standard practice. But it isn't really profitable unless you know where the wagon's heading. Aerosol Products Corp. (Chicago), formed early this year to capitalize on the demand for aerosols, has recently edged toward the driver's seat. Its move: Pronto Dye-Foam (CW, Sept. 20).

Aerosol's rug and carpet rejuvenator was about the first of the handy dyes to hit the market, though Henderize, Inc.'s (Sacramento, Cal.) Fab-Spray is a related product recently marketed.* Pronto Dye-Foam is now sold in four colors—green, brown, rose, and blue—but Aerosol has additional shades on the way.

Originally Dye-Foam was a bulk product, sold for hotel and airline use. Diluted with water and run through

a carpet shampoo machine, it boosted the mileage of worn carpets, put off replacement time, important to hotels where carpet re-laying cuts sharply into room revenue.

Lab tested, and approved for hotel use, the carpet dye was shown to be virtually colorfast to light and to rub-off. (24 hours after application, some color can be rubbed off; after a week's aging, none comes off.) It's non-toxic, and leaves the rug almost odorless.

The housewife seemed a natural customer—if a way to eliminate the dilute-and-whip-foam drawbacks could be found. Aerosols were the answer; a 12-oz container (\$2.98), holding enough to treat a 9 by 6 foot rug was decided upon. Now just about out of the test market stage, Pronto Dye-Foam will be nationally distributed through department and hardware stores. It is recommended only for solid color, or sculptured rugs of wool.

Behind the Aerosol Products Co.

* Also classified with these rejuvenators might be Mercury Chemical Co.'s (Chicago) Peter Pan Suede Refinisher, a leather aid sold retail as 6-oz. aerosol at \$1.39.

Originated by Coating-Resin Chemical Headquarters

**for
SAFER • MORE UNIFORM
RESIN MIXTURES**

NATIONAL MALEIC ANHYDRIDE RODS

Uniform in size, easy to weigh and handle, National Maleic Anhydride Rods improve working conditions; minimize labor costs; decrease contamination and moisture pick-up.

PACKAGING: 250# "lever-pak" fiber drum with built-in moisture-vapor barrier.

AVAILABLE: in ample quantity for prompt delivery.

We welcome inquiries for

Phthalic Anhydride
Tetrahydro Phthalic Anhydride
Monochlor Maleic Anhydride
Succinic Anhydride
Alkenyl Succinic Anhydride
Fumaric Acid

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N.Y. • Bowling Green 9-2240

Boston 14, Mass. 150 Cambridge St.	(Apex) 7-0490	Chattanooga 2, Tenn. 1000 14th St.	Richmond 2, Va. 8-0000 11th St.
Philadelphia 3, Pa. 15 Westinghouse St.	St. Louis 1 1018	Cincinnati 2, Ohio 1000 14th St.	St. Paul 1 1078
Philadelphia 6, Pa. 200 20th St.	St. Paul 3 6182	Cleveland 1, Ohio 1000 14th St.	St. Paul 2 2118
San Francisco 3, Cal. 317 Howard St.	St. Paul 4 1007	Cleveland 2, Ohio 1000 14th St.	St. Paul 3 6182
Portland 9, Ore. 1000 14th St.	St. Paul 5 1007	Cleveland 3, Ohio 1000 14th St.	St. Paul 4 1007
Chicago 54, Ill. 1000 14th St.	St. Paul 6 1007	Cleveland 4, Ohio 1000 14th St.	St. Paul 5 1007
Chicago 55, Ill. 1000 14th St.	St. Paul 7 1007	Cleveland 5, Ohio 1000 14th St.	St. Paul 6 1007
Chicago 56, Ill. 1000 14th St.	St. Paul 8 1007	Cleveland 6, Ohio 1000 14th St.	St. Paul 7 1007
Chicago 57, Ill. 1000 14th St.	St. Paul 9 1007	Cleveland 7, Ohio 1000 14th St.	St. Paul 8 1007
Chicago 58, Ill. 1000 14th St.	St. Paul 10 1007	Cleveland 8, Ohio 1000 14th St.	St. Paul 9 1007
Chicago 59, Ill. 1000 14th St.	St. Paul 11 1007	Cleveland 9, Ohio 1000 14th St.	St. Paul 10 1007
Chicago 60, Ill. 1000 14th St.	St. Paul 12 1007	Cleveland 10, Ohio 1000 14th St.	St. Paul 11 1007
Chicago 61, Ill. 1000 14th St.	St. Paul 13 1007	Cleveland 11, Ohio 1000 14th St.	St. Paul 12 1007
Chicago 62, Ill. 1000 14th St.	St. Paul 14 1007	Cleveland 12, Ohio 1000 14th St.	St. Paul 13 1007
Chicago 63, Ill. 1000 14th St.	St. Paul 15 1007	Cleveland 13, Ohio 1000 14th St.	St. Paul 14 1007
Chicago 64, Ill. 1000 14th St.	St. Paul 16 1007	Cleveland 14, Ohio 1000 14th St.	St. Paul 15 1007
Chicago 65, Ill. 1000 14th St.	St. Paul 17 1007	Cleveland 15, Ohio 1000 14th St.	St. Paul 16 1007
Chicago 66, Ill. 1000 14th St.	St. Paul 18 1007	Cleveland 16, Ohio 1000 14th St.	St. Paul 17 1007
Chicago 67, Ill. 1000 14th St.	St. Paul 19 1007	Cleveland 17, Ohio 1000 14th St.	St. Paul 18 1007
Chicago 68, Ill. 1000 14th St.	St. Paul 20 1007	Cleveland 18, Ohio 1000 14th St.	St. Paul 19 1007
Chicago 69, Ill. 1000 14th St.	St. Paul 21 1007	Cleveland 19, Ohio 1000 14th St.	St. Paul 20 1007
Chicago 70, Ill. 1000 14th St.	St. Paul 22 1007	Cleveland 20, Ohio 1000 14th St.	St. Paul 21 1007
Chicago 71, Ill. 1000 14th St.	St. Paul 23 1007	Cleveland 21, Ohio 1000 14th St.	St. Paul 22 1007
Chicago 72, Ill. 1000 14th St.	St. Paul 24 1007	Cleveland 22, Ohio 1000 14th St.	St. Paul 23 1007
Chicago 73, Ill. 1000 14th St.	St. Paul 25 1007	Cleveland 23, Ohio 1000 14th St.	St. Paul 24 1007
Chicago 74, Ill. 1000 14th St.	St. Paul 26 1007	Cleveland 24, Ohio 1000 14th St.	St. Paul 25 1007
Chicago 75, Ill. 1000 14th St.	St. Paul 27 1007	Cleveland 25, Ohio 1000 14th St.	St. Paul 26 1007
Chicago 76, Ill. 1000 14th St.	St. Paul 28 1007	Cleveland 26, Ohio 1000 14th St.	St. Paul 27 1007
Chicago 77, Ill. 1000 14th St.	St. Paul 29 1007	Cleveland 27, Ohio 1000 14th St.	St. Paul 28 1007
Chicago 78, Ill. 1000 14th St.	St. Paul 30 1007	Cleveland 28, Ohio 1000 14th St.	St. Paul 29 1007
Chicago 79, Ill. 1000 14th St.	St. Paul 31 1007	Cleveland 29, Ohio 1000 14th St.	St. Paul 30 1007
Chicago 80, Ill. 1000 14th St.	St. Paul 32 1007	Cleveland 30, Ohio 1000 14th St.	St. Paul 31 1007
Chicago 81, Ill. 1000 14th St.	St. Paul 33 1007	Cleveland 31, Ohio 1000 14th St.	St. Paul 32 1007
Chicago 82, Ill. 1000 14th St.	St. Paul 34 1007	Cleveland 32, Ohio 1000 14th St.	St. Paul 33 1007
Chicago 83, Ill. 1000 14th St.	St. Paul 35 1007	Cleveland 33, Ohio 1000 14th St.	St. Paul 34 1007
Chicago 84, Ill. 1000 14th St.	St. Paul 36 1007	Cleveland 34, Ohio 1000 14th St.	St. Paul 35 1007
Chicago 85, Ill. 1000 14th St.	St. Paul 37 1007	Cleveland 35, Ohio 1000 14th St.	St. Paul 36 1007
Chicago 86, Ill. 1000 14th St.	St. Paul 38 1007	Cleveland 36, Ohio 1000 14th St.	St. Paul 37 1007
Chicago 87, Ill. 1000 14th St.	St. Paul 39 1007	Cleveland 37, Ohio 1000 14th St.	St. Paul 38 1007
Chicago 88, Ill. 1000 14th St.	St. Paul 40 1007	Cleveland 38, Ohio 1000 14th St.	St. Paul 39 1007
Chicago 89, Ill. 1000 14th St.	St. Paul 41 1007	Cleveland 39, Ohio 1000 14th St.	St. Paul 40 1007
Chicago 90, Ill. 1000 14th St.	St. Paul 42 1007	Cleveland 40, Ohio 1000 14th St.	St. Paul 41 1007
Chicago 91, Ill. 1000 14th St.	St. Paul 43 1007	Cleveland 41, Ohio 1000 14th St.	St. Paul 42 1007
Chicago 92, Ill. 1000 14th St.	St. Paul 44 1007	Cleveland 42, Ohio 1000 14th St.	St. Paul 43 1007
Chicago 93, Ill. 1000 14th St.	St. Paul 45 1007	Cleveland 43, Ohio 1000 14th St.	St. Paul 44 1007
Chicago 94, Ill. 1000 14th St.	St. Paul 46 1007	Cleveland 44, Ohio 1000 14th St.	St. Paul 45 1007
Chicago 95, Ill. 1000 14th St.	St. Paul 47 1007	Cleveland 45, Ohio 1000 14th St.	St. Paul 46 1007
Chicago 96, Ill. 1000 14th St.	St. Paul 48 1007	Cleveland 46, Ohio 1000 14th St.	St. Paul 47 1007
Chicago 97, Ill. 1000 14th St.	St. Paul 49 1007	Cleveland 47, Ohio 1000 14th St.	St. Paul 48 1007
Chicago 98, Ill. 1000 14th St.	St. Paul 50 1007	Cleveland 48, Ohio 1000 14th St.	St. Paul 49 1007
Chicago 99, Ill. 1000 14th St.	St. Paul 51 1007	Cleveland 49, Ohio 1000 14th St.	St. Paul 50 1007
Chicago 100, Ill. 1000 14th St.	St. Paul 52 1007	Cleveland 50, Ohio 1000 14th St.	St. Paul 51 1007



Why do buyers re-order these fatty alcohols?

CACHALOT fatty alcohols have been specified by many of the largest firms in the chemical processing industries for well over twenty years. Why do chemists and purchasing agents re-order this brand? Evidently these cetyl, oleyl, and stearyl alcohols live up to the claims made for them: high uniformity from lot to lot, a wide range from which to choose the specific alcohol that meets one's needs, and availability in tonnage lots at fair prices. Some of the profitable uses for CACHALOT alcohols have been as emulsifiers, penetrants, anti-foams; and as intermediates in the preparation of esters, aldehydes, chlorinates, etc. For a booklet telling how you can use these versatile raw materials, write M. Michel and Company, Inc., 90 Broad Street, New York 4, N.Y. Basic suppliers to chemical manufacturers for over a quarter century, their trade name for the best fatty alcohols is

Cachalot®

**SODIUM
SILICOFLUORIDE
AMMONIUM
SILICOFLUORIDE**

**HENRY SUNDHEIMER
COMPANY**

103 Park Ave., New York 17
Telephone: MUrray Hill 5-4214

Fluorine Specialists for Over 40 Years

SPECIALTIES

are Leon B. Fox (president) and Syd M. Perlman. They first tried push-button products with their Winco Co.'s (since renamed Diane Winston, Inc.) aerosol hair spray. Spritely sales of this product, Twirl, led to an expanded aerosol line, and then in January of this year, Aerosol Products Corp. was formed.

The first of Aerosol's products (with the "Pronto" trademark) were DDT-pyrethrins insecticides, moth proofers, and a waterproofer. A little later came Pronto Ignition and Glass Sealer, followed by the Dye-Foam.

Next on the company's list will be a canned artificial snow. It's not a trail-breaker this time, but Aerosol likes the looks of things from the front seat, and aims to provide the products to get there.

Pharmacy over Witchcraft: Production of cortisone from diosgenin, an extract of the South African plant, Elephant's Foot, will begin next March at Clanwilliams, S.A.

New Wax: A new white ceresine type

wax, called Warcosine, is now being sold by Warwick Wax Co. (New York), subsidiary of Sun Chemical Corp. Not a wax blend, the petroleum-derived wax is suggested for use in paper products, cosmetics, and the like.

High Flying Glue: Exclusive license to make a Northrop Aircraft-developed adhesive has been granted to Narmco Resins and Coatings Co., (Costa Mesa, Calif.). The glue was devised to bond Styrofoam to metal surfaces; Styrofoam has been found of value in fabricating strong, lightweight aircraft structures.

Detergent Extender: A low-cost extender, claimed to be capable of replacing up to 50% of alkyl aryl sulfonates, has just been introduced by Oil and Chemical Products Co., Inc. (New York). The O&C extender is a by-product derived from its benzol refining process. A gallon is said to equal about 1.7 lbs. of sulfonate. Liquid and spray-dried forms are available; a technical bulletin will be supplied on request.



End of the Snail Trail

CHEMICAL FUMIGATION is part of the preventive measures the U.S. Dept. of Agriculture is recommending to keep destructive mollusks from spreading in this country. Under a government regulation effective last week, voluntary inspection of incom-

ing ships for mollusks such as the African snail is mandatory.

Though choice of chemical treatment of ships is up to the inspector, hydrogen cyanide disks are the most widely used materials for sealed holds. Live steam can be used.

since 1919...

DEVOE
WONDER-1-COAT
HOUSE PAINT



*Nothing takes the place
of Glycerine*

The Jones-Dabney Division of Devoe and Raynolds Company began using Glycerine to produce alkyd resins over 30 years ago. Today, the same Glycerine-derived alkyds which are used for every industrial coating application from bobbypins to battleships—can also be found in the famous Devoe line of enamels and interior finishes.

FULLY ACCEPTED... FULLY AVAILABLE IN ALL GRADES!

First, it was industrial finishes... now, in one of the most outstanding recent developments in the industry, Glycerine-derived alkyd resins have been introduced to the entire household interior coating field!

Pioneers in this new application of alkyd resins is America's oldest paint maker: Devoe and Raynolds Co. Inc. For years Devoe has recognized in Glycerine a vital chemical intermediate in the manufacture of its alkyd resins and ester gums. With these Glycerine-derived alkyds, Devoe marine and industrial coatings have earned a world-wide reputation for gloss, brightness and resilience.

Like Devoe, America's leading paint makers have found Glycerine easier to work with in the critical resin-making operation. For light-colored alkyds, Glycerine is available to meet the exacting standards of the color-conscious paint industry.

"Why Glycerine for Alkyd Resins and Ester Gums?" tells the story of these applications with detailed information on the chemical and physical properties of Glycerine. Write for your copy.

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Avenue, New York 17, N. Y.

Announcing...

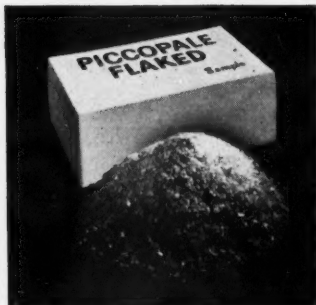


a completely New
entirely Different
surprisingly Low Cost

BASIC RAW MATERIAL



Available Solid



Flaked



or in Solution



PENNSYLVANIA INDUSTRIAL CHEMICAL

CLAIRTON • PENNSYLVANIA

Plants at: Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.

PICCOPALE

A 100%
Polymerized
Petroleum Resin



Clear, Clean



Transparent, Thermoplastic



Available in Enormous Quantities



PICCOPALE is a completely new type of synthetic resin—not just another variety of one of the familiar types. It is entirely different from anything developed heretofore . . . is produced in very large quantities . . . and is priced low enough to make it feasible for use as a basic raw material.

PICCOPALE offers a new approach to improved quality and lower costs. This brand-new synthetic resin, developed and produced by Pennsylvania Industrial Chemical Corporation provides good chemical resistance, pale

initial color, excellent compatibility and ready solubility.

If you are interested in a bulk material that is absolutely waterproof, that is easy to use with other materials, that is low in cost, high in quality and readily available, investigate PICCOPALE!

We will be glad to send complete data and samples. Please specify application, and whether the sample of PICCOPALE should be in the form of flake, solid or a liquid solution.

write for complete data and samples

CORPORATION

Use
the
Coupon

PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.
CLAIRTON, PENNSYLVANIA

Please send sample of PICCOPALE for (application)

(check) flake ☐ solid ☐ liquid solution ☐

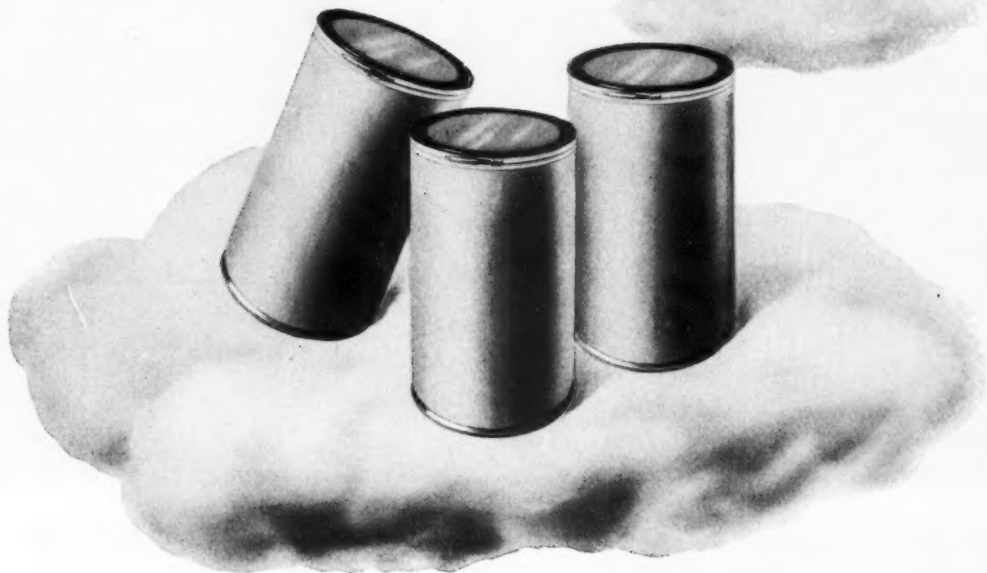
Name

Company

Address

(CW)

The light way to ship is in Continental Fibre Drums



These light-weight durable shipping containers are designed for real economy. They bring you appreciable savings on shipping charges — savings that can amount to substantial sums in the face of today's high freight rates. And they also save you worthwhile amounts on export shipments where import duties are figured on gross weight.

Continental drums are tough and sturdy. They stand up to the abuse of long freight hauls without splitting,

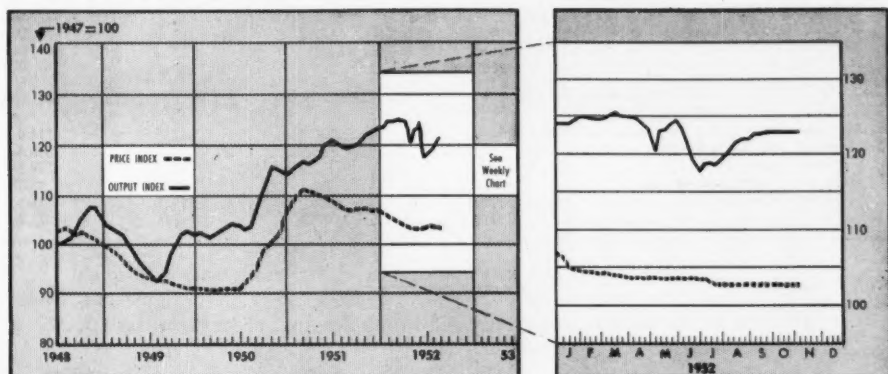
cracking or leaking. This means you can give expensive or dangerous materials adequate shipping protection at minimum shipping cost. Closures seal securely, yet go on and off easily.

These drums can be printed or paint sprayed to become colorful, effective "traveling salesmen!" Continental fibre drums are available in a full line of sizes, from 12 gallons to 75. Call or write your nearest office for complete details.

CONTINENTAL © CAN COMPANY
Fibre Drum Division
Van Wert, Ohio

NEW YORK • PHILADELPHIA • PITTSBURGH • TONAWANDA • CLEVELAND
CHICAGO • SAN FRANCISCO • ST. LOUIS • LOS ANGELES • EAU CLAIRE

MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Naphthalene is gradually accumulating, reports from producers show. Price drops six weeks ago of 10%-plus have not stimulated buying by phthalic anhydride industry, apparently well loaded with the stuff. Looks as though previous naphthalene shortage scare caused them to stock up.

Some take-up of slack may be on the way from dyestuff intermediate makers, who are gearing for textile recovery.

Calcium chloride shipments from big Midwest producers continue to fall behind demand. Lag is now as much as 14 days. Most plausible reason for temporary shortage: last month's early cold snap startled county road caretakers into worrying about an early winter.

Nitrogen fertilizers will stay tight for a long time—and farmers know it. Well briefed on advantages of high nitrogen goods, more farmers are using more, stockpiling during dry weather, waiting for the rains to come.

Ammonia production, up 250% in the past five years, will have to run even faster to keep up with the farmers.

Methylene chloride manufacturers can't see logic of continued allocation, say they can fill all orders, tremendous government demand notwithstanding.

One reason for their chafing: plans for big push into non-flammable paint stripper field carry little weight with their customers, skeptical in atmosphere of shortage talk.

Plastics manufacturers, rubbing their eyes over uninterrupted demand for their output, are still keeping watch for signs of a break in demand from the toy makers. The usual seasonal dip could (but might not) materialize any day now.

Synthetic detergents are putting skids on soaps according to the nine months report of the Association of American Soap & Glycerine Producers. Combined sales of soap and synthetics, up 1½% over nine months of 1951 break down like this: synthetics—1,126 million pounds, up 20%; soaps—1,450 million pounds, down 9½%.

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.7	122.7	123.9
CHEMICAL WEEK Wholesale Price Index (1947=100)	102.3	102.6	106.9
Bituminous Coal Production (daily average, 1,000 tons)	1,800.	1,537.	1,517.
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	242.8	241.1	231.3

MONTHLY INDICATORS—Wholesale Prices

(Index 1947-1949=100)	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	113.2	113.2	114.6
Chemicals and Allied Products	103.9	104.0	108.8
Industrial Chemicals	113.9	114.3	119.3
Drugs and Pharmaceuticals	92.1	92.1	95.6
Fertilizer Materials	111.0	111.0	107.5
Oils and Fats	50.9	48.9	71.8

Potassium muriate, producers agree, will remain active through the fertilizer season, but not grow short. A large influx of foreign material can be expected to fill any sustained high demand, make tightness out of the question.

Although toluol may be expected to continue on a tight producer-allocated basis, relief is predicted by mid-1953. Increasing amounts of petroleum toluol will help to satisfy the demand. No change in price is in the air, however.

Phenol pick-up, slow to start, is finally under way, thanks to orders from resins and adhesives makers.

But foreign competitors, with material cheaper than ours, will keep price down despite increased activity.

If past performance is any criterion, ethyl alcohol hasn't hit bottom yet. Look for another drop next Spring.

Reason: Cuban producers, facing another molasses splurge piled on top of present inventory, will probably be glad to take even 4¢ per pound to keep it moving.

It looks as though peanut oil will continue tight. This week's 10% advance in price will not bring out more of the government-controlled commodity.

Crushers are inclined to blame processing controls for this situation. But basic root of trouble is this year's comparatively light peanut crop, down about 25% from last year and way down from the previous ten-year average.

Japan's import ties are strengthening, but not necessarily with our country. Latest move of The Policy Board of the Bank of Japan is to allocate a "special foreign currency budget" designed to facilitate trade with certain countries.

The Policy Board action is expected to bring in needed potassium nitrate from West Germany and French Union, might be extended to woolen yarn imports from Argentina.

Distillers feel that peppermint oil prices will remain at current levels for several months. Although the Midwest harvested a smaller crop from its higher-quality fields this year, a plentiful supply of low-menthol oil from the Far West will bolster stocks, maintain prices.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending November 17, 1952

UP	Change	New Price		Change	New Price
Lead, metal, lb., c.l.	.005	.145	Glycerine, saponification, crude, 88%	.02	.285
DOWN					
Acid, Tartaric, domestic, c.l.	.025	.37	Alcohol, amyl, expentane, T./C.	.05	.15

All prices per pound unless quantity is stated.

Save with Celanese^{*} *profit column* Solvents

n-PROPYL ACETATE

*can save you up to 6¢/gal.
as your medium-boiling solvent*

Gain superior resin compatibility and improved lacquer odor

Celanese n-Propyl Acetate is the newest of the Celanese Solvents that enable you to cut production costs while maintaining highest performance standards.

Medium boiling, low viscosity ester. N-Propyl Acetate is a medium boiling, low viscosity solvent with a pleasant odor and excellent blush resistance. As a low-cost replacement for other ester combinations of similar quality, it is saving lacquer manufacturers up to 6¢ a gallon on their finished product. Produced under controls that assure uniformity and high purity, Celanese n-Propyl Acetate gives you maximum quality at minimum cost.

Split shipments in compartmented cars. Your Celanese representative will be glad to show you how you can now realize additional savings and

convenience through split shipments of Celanese Solvents in compartmented tank cars and wagons at lowest bulk prices.

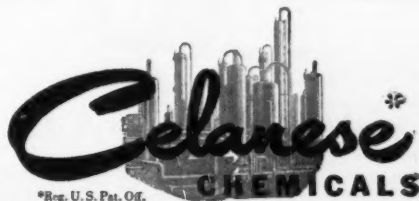
Celanese Product Evaluation Laboratory. Use the facilities of the Celanese Product Evaluation Laboratory to check n-Propyl Acetate in your own formulation against any series of tests you designate. Write for samples and Technical Bulletin N-29, to Celanese Corporation of America, Chemical Division, Dept. 652-K, 180 Madison Avenue, New York 16, N. Y.

PROPERTIES

Color.....	15 APHA
Spec. Grav.....	0.880 - 0.885 @ 20/20°C
Boil. Pt.....	95°C - 103°C
Ester Content.....	90% - 92%

OTHER SOLVENTS BY CELANESE

Solvent 203	Solvent 301
Solvent 601	Solvent 901
n-Propanol	Isobutanol



*Reg. U.S. Pat. Off.

***When a miracle medicine brings health
in a hurry...***

U·S·S COAL CHEMICALS

are in the picture



● This generation has been blessed by an amazing succession of discoveries in the medical and pharmaceutical fields that have practically conquered many diseases previously considered "killers." One of the earliest and most important discoveries was the sulfa family.

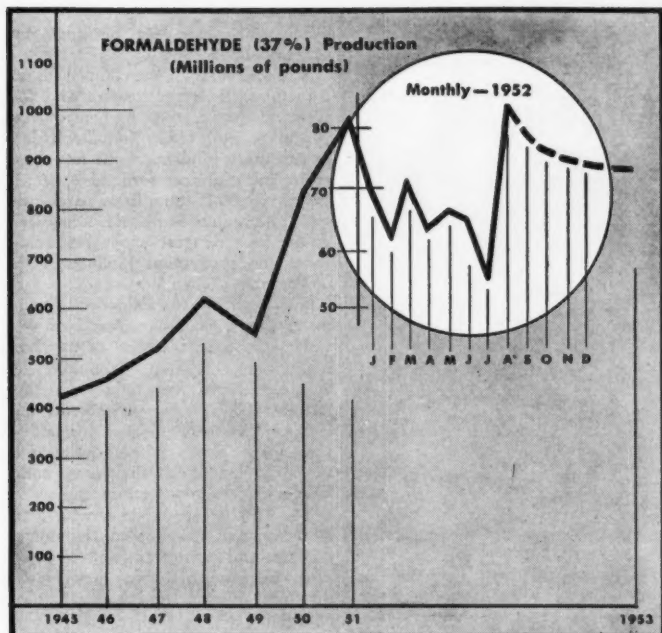
U·S·S Pyridine that goes into the manufacture of the sulfa drugs is typical of the almost countless applications of U·S·S Coal Chemicals. The complete line of U·S·S Coal Chemicals also includes Benzol, Toluol, Xylol, Phenol, Cresol, Cresylic Acid, Naphthalene, Picoline, Creosote Oil and Ammonium Sulphate.

From mining of the coal to final processing in one of our nine coal chemical plants, United States Steel controls all the operations in the production of U·S·S Coal Chemicals. That's why you'll find United States Steel such a good source of supply. United States Steel Company, 525 William Penn Place, Pittsburgh 30, Pa.

U·S·S COAL CHEMICALS



UNITED STATES STEEL



How Much Formaldehyde?

After a couple years of forced growing, formaldehyde plants are ready for and hopeful of a gradually rising demand.

DPA goal, 300 million pounds above industry sights, is encountering resistance from more cautious producers.

Captive production, upgraded products and a free material supply mark new order.

Today the formaldehyde supply picture is vastly different from the hectic times of late 1950 and early 1951. The problems set up by the Korean emergency scare have disappeared. But to comprehend how formaldehyde arrived at its present state of free supply is to know by what paths it came.

No Choice: As far as formaldehyde supply is concerned, chances are we'll never again need to choose between guns and butter; i.e., between military plastics, synthetic rubber and explosives on one hand and plastic toys on the other.

For formaldehyde capacity responded mightily to the national emergency. Rising literally to the occasion, production for the last half of 1950 shot to a 900-million-pound annual clip, up over 60% from the leisurely 550-million pace of 1949.

The Pinch: In an industry so basic as formaldehyde, emergency troubles

compound rapidly—and can dissipate almost as fast. This sudden squeeze from peacetime freedom to wartime tightness resulted in great part from demands for synthetic rubber, military plastics and explosives. Although not all draw directly upon formaldehyde, these requirements meant pressure for the material.

- **Synthetic rubber:** In its earlier development synthetic rubber took large amounts of ethyl alcohol (CW, Nov. 15). (With petroleum-base butadiene facilities now available, this state of affairs no longer obtains.) Two years ago more ethanol for rubber meant less for anti-freeze, meant more demand for methanol anti-freeze. And less methanol, base for most formaldehyde, resulted in a squeeze on that material.

- **Military plastics:** War demands put special strain on plastics. First, substitutes for hard-to-get metals had to be employed. Second, many war-

DIPHENYLTHIOCARBAZONE

(DITHIZONE)

Reagent for Co, Cu, Pb and Hg.

PHENOLSULFONPHTHALEIN

(PHENOL RED)

For estimation of Renal Function, Also as indicator

THYMOLPHTHALEIN

As pH indicator and test for blood

BENZIDINE DIHYDROCHLORIDE

Reagent for test for blood

PROPYL GALLATE

An anti-oxidant for edible animal fats

Our research department has solved the synthesis of such complicated organic chemicals as PHENYLEPHRINE HYDROCHLORIDE U.S.P., TETRACAINE U.S.P. & METHONIUM HYDROBROMIDE pharmaceutical grade. We will be glad to supply these materials, as well as to develop synthesis and manufacture your specific products.

WRITE FOR PRICES
AND TECHNICAL
DATA SHEETS.
DEPT. C. W.

**FINE
ORGANICS Inc.**

211 East 19th Street, New York 3, N. Y.



Go the scientific way...go **MGK**

Insecticide Concentrates for

AEROSOLS

DUSTS

SPRAYS

We offer complete formulas... ready to put right into your aerosol bombs or your retail packages or... combinations of insecticides and synergists that leave you only the minimum of processing to do or... the purest toxicants and synergists in their primary forms. MGK has the best of whatever you want.



THE PROMOTERS OF
PREVENTION AND ALLYMENT

For complete information write
1709 SE 6th St.,
Minneapolis,
Minnesota

McLAUGHLIN

GORMLEY

KING COMPANY

Scarabaeus
aeneus
Scarab beetle
Model for Ex-
position award alone
• insects and
• models



IT TAKES A CATALYST TO MAKE THINGS HAPPEN . . .

Money is a catalyst that makes things happen in industrial growth. In chemicals, money is the catalyst that bridges the passage from laboratory to commercialization of new and better products in the astonishing successes of modern chemistry—from medicinals, to agricultural chemicals, to new textile fibres.

Sound financing makes such progress possible by helping to speed the reaction between discovery and production, between science and industry. Much of the capital that has nourished the chemical industries has been supplied by commercial banks. As expansion proceeds today at such an impressive pace, the financing of our forward-looking chemical manufacturers becomes a more important phase of commercial banking.

Guaranty Trust Company of New York has valuable experience in chemical financing. Our officers are readily available to discuss your financial needs.

Guaranty Trust Company of New York *Capital Funds \$380,000,000*

140 Broadway, New York 15

Fifth Ave. at 44th St.
New York 36
LONDON
32 Lombard St., E.C. 3
Bush House, W.C. 2

Madison Ave. at 60th St.
New York 21
PARIS
4 Place de la Concorde

Rockefeller Plaza at 50th St.
New York 20
BRUSSELS
27 Avenue des Arts

Member Federal Deposit Insurance Corporation

MARKETS

special jobs can best be done by tailor-made plastics.

- **Explosives:** Their impact upon formaldehyde is both direct and indirect. Directly, they not only force pentaerythritol (from formaldehyde) to substitute in alkyd resins for glycerine, but consume formaldehyde as pentaerythritol tetranitrate and nitrated hexamine. Indirectly, ammonia, at the base of most explosives, competes for production facilities with methanol.

That's why formaldehyde was pinched two years ago. And how we came to expand facilities as we did.

The only reason formaldehyde wasn't squeezed even tighter was the lack of other plastics ingredients. In less explosive times most formaldehyde goes directly into phenolic and urea resins. But at that time both phenol and urea were also tight.

The Let-Down: In time, with lots more ethanol, increased ammonia facilities and greater amounts of benzene (for phenol) from petroleum, the formaldehyde (and resin) picture changed.

But just as the way cleared for an uninterrupted drive for plastics and other formaldehyde products, along came the general economic slump. From all-time (1951) highs, phenolic, urea and related resins, tied by numerous products to the economic body, dropped with the times. Result: Formaldehyde, after a long tight period, suddenly flowed freely.

The let-down has been considerable. Output of resins, formerly users of one-third to one-half all formaldehyde, is running an average 25% lower than a year ago. For the first eight months of 1952, phenolic and related resins total a slow 225 million pounds versus 314 million for the same period last year. Similarly, urea and melamine resins show a mere 128 million pounds so far as against 164 million last year.

Although acknowledging the definite dip, formaldehyde producers are fairly optimistic about next year's outlook. They point with hope to the increased plastics activity of the past two months.

And this time, even urea, the last of the tight resin components (CW *Market Letter*, Nov. 15) will gradually ease. In longer range, the three or four additional plants now under way should be adequate.

The New Look: With formaldehyde pipelines apparently all filled, industry leaders, reluctant to expand promiscuously, are exploring one or more of three policies. They are either reconsidering new expansion, turning to

One DEMPSTER-DUMPSTER Serves Scores of Containers . . All Designs . . All Sizes . .



Handling Materials of Almost Every Description at the Lowest Possible Cost!

One Dempster-Dumpster mounted on one of your trucks serves any required number of big detachable Dempster-Dumpster Containers spotted at convenient materials accumulation points inside and outside your buildings. The capacity of these containers range up to four times greater than the average dump truck body. They are built in a wide variety of designs best suited to the materials handled—be they solid, liquid or dust . . . trash or rubbish . . . bulky light or heavy. The truck-mounted Dempster-Dumpster, with only one man, the driver, picks up one pre-loaded container after another, hauls it to destination where materials are dumped or load set down intact. The Dempster-Dumpster may handle raw materials on one haul, liquids on another, trash and rubbish on another, etc. It's like having one truck with 15, 25, 65 or 100 different bodies.

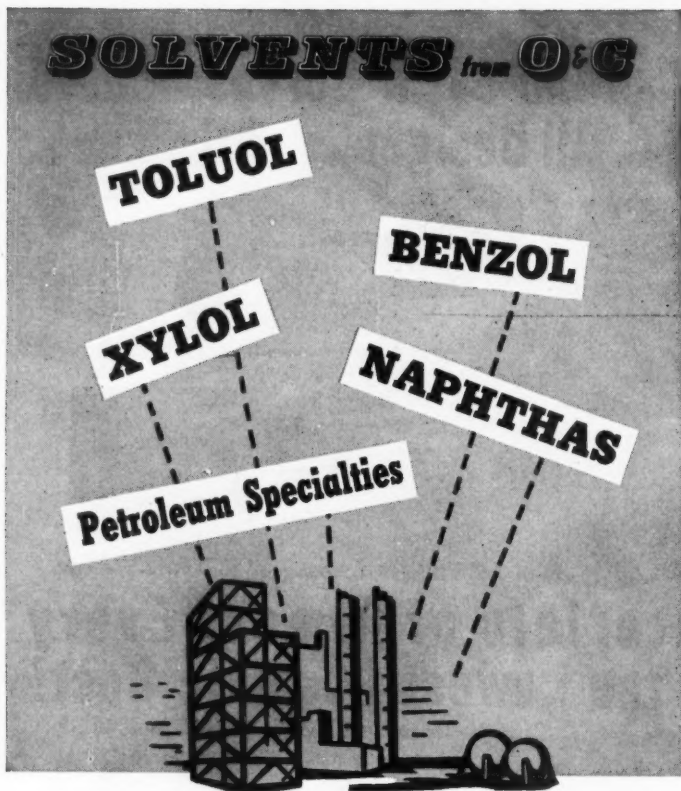
This is the *Dempster-Dumpster System*—the modern method of bulk materials handling. It is saving thousands of dollars annually for hundreds of plants in every type of industry because it: Eliminates 3 to 5 conventional trucks and crews—reducing cost of truck equipment and operation accordingly. . . Eliminates standing idle time of trucks and crews. . . Eliminates re-handling of materials. . . Increases efficiency, sanitation and good housekeeping.

The *Dempster-Dumpster System* is, without question, the most efficient method of materials handling by truck ever devised! More efficient and lower cost materials handling in your plant may be simply a matter of getting the minds of your engineers and ours together. Write us now. The *Dempster-Dumpster System* is manufactured exclusively by Dempster Brothers, Inc.



WHEN A CONTAINER is full, the Dempster-Dumpster picks it up, hauls it to destination and dumps the materials or sets the load down intact. These three simple operations, shown above, are hydraulically controlled by driver in truck cab.

DEMPSTER BROTHERS, 2112 Dempster Bldg., Knoxville 17, Tenn.



In considering a dependable source of supply for solvents, it's important to know where they come from.

O&C's recently built plant in Galena Park (Houston) Texas is strategically located in the heart of the growing Southwest. Deliveries by tanker, tank car or tank truck are rapidly and economically made to all parts of the country.

Facilities available for custom made cuts, specification products and private formulae.



OIL & CHEMICAL PRODUCTS INC.

NEW YORK: 295 Madison Avenue • HOUSTON: City National Bank Bldg.

Exporters and Importers of
Industrial Chemicals

Petroleum and Aromatic
Solvent Refiners

MARKETS

captive production setups, or promoting specialty products.

• Although the DPA has granted certificates of necessity for several formaldehyde expansions, it is known that the grantees are not rushing headlong into construction and at least one of the certificates has already been returned. It looks as if DPA's goal of 1,600 million annual pounds is about 300 million pounds higher than the industry cares to "buy."

• Because formalin is too cheap a material to bear much freight charges, more expansion is going to on-the-spot captive type. For example, Heyden, in Canada, plans formaldehyde increases tied in with pentaerythritol production.

• Again, to beat freight costs and upgrade products, other producers are pushing higher-unit-value, more readily transportable solid formaldehyde forms, such as paraformaldehyde.

CW polled industry spokesmen to gauge next year's consumption under these new conditions. The composite response to the survey pieces together like this:

End Use	Millions of pounds
Phenol-formaldehyde resins	200
Urea-formaldehyde resins	180
Melamine-formaldehyde resins	60
Pentaerythritol	200
Ethylene glycol	100
Hexamine	70
Paraformaldehyde	40
Textiles	25
Miscellaneous	25
Total	900

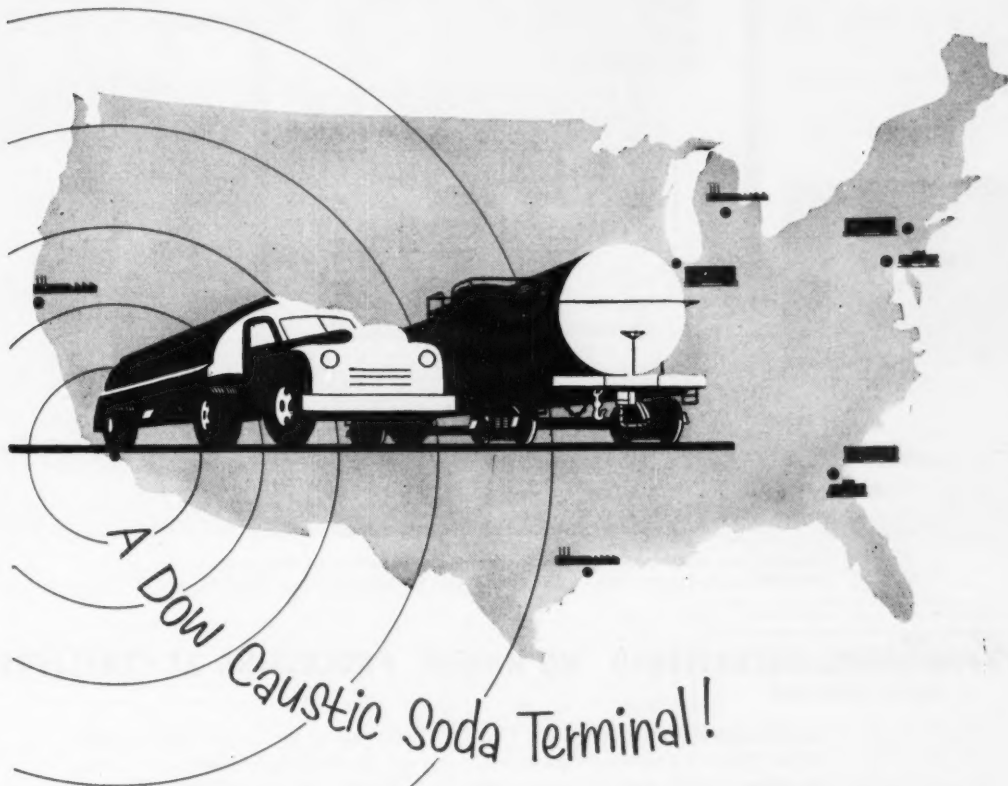
This total represents about a 10% rise over the estimate for 1952. In turn, 1952, for the reasons mentioned, looks about 20-25% below banner year 1951.

Virtually all of this dip below "boom times" is reflected in the estimates for urea-formaldehyde and phenol-formaldehyde resins. Of the other uses, only paraformaldehyde is expected to maintain a rapid rate of climb.

The survey indicates that the industry's guess at a moderate improvement for next year is based, in the main, on a confident outlook for the general economic level—rather than on special conditions in the formaldehyde industry.

The producers are hoping for a chance to use all those muscles they've been building up.

how close are you to Los Angeles, California?



The Chemical Industry Needs Hundreds of Thousands of Tons of Caustic Soda Each Year!

In the chemical industry, prompt caustic soda delivery is of the greatest importance in keeping production steady. For this reason Dow maintains an outstanding network of distribution facilities. In addition to Dow's caustic soda solution terminal in Los Angeles, California—Dow operates caustic soda producing plants in Midland, Michigan; Freeport, Texas and Pittsburg, California. Dow caustic soda solution is

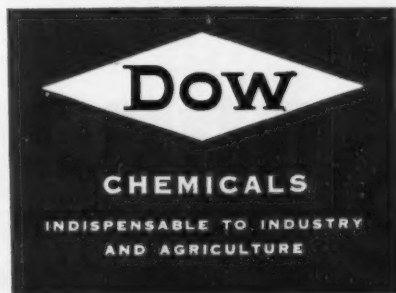
also shipped from bulk tank terminals in Carteret, New Jersey and Charleston, South Carolina. Caustic soda solid, flake and ground flake are shipped from terminals in Port Newark, New Jersey; Chicago, Illinois and Charleston, South Carolina. All of these strategically located distribution points play an important part in providing the chemical industry with the superior service it requires.

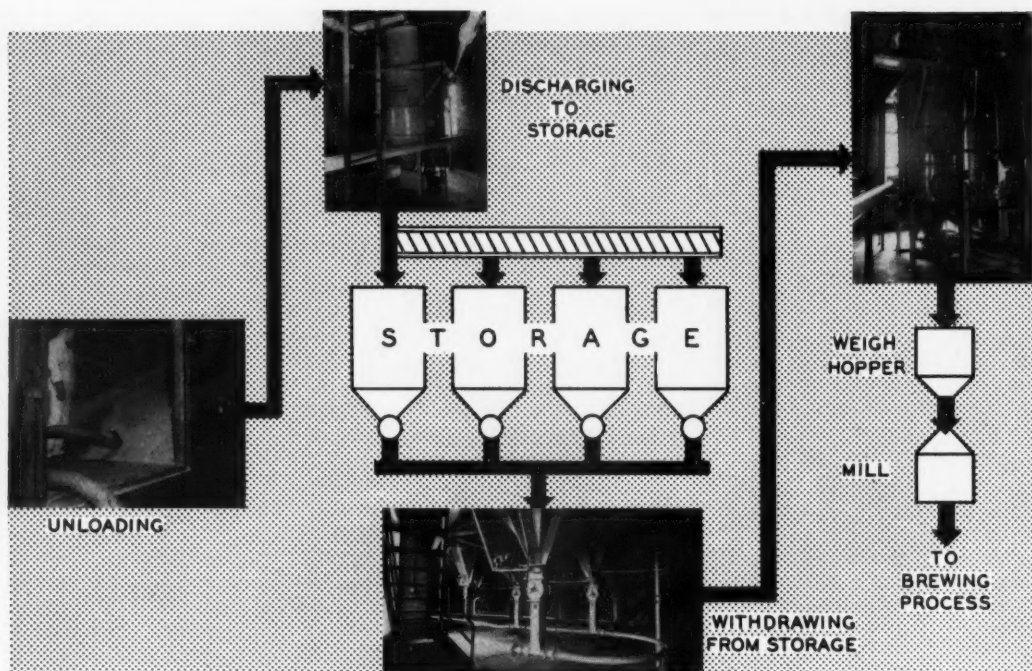
wherever you are... *you're close to*

**DOW
CAUSTIC
SODA**

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Atlanta • Cleveland • Detroit
Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada





Materials flow diagram shows reason for "No Hands" operation at Centlivre. From transport to process, grains are handled automatically by Dracco Airstream Conveyor.

Airstream ESTABLISHED "NO HANDS" PROCESSING AT CENTLIVRE

An automatic Dracco Airstream Conveyor system has eliminated all manual handling of grain, grits and malt at the Centlivre Brewing Corporation in Fort Wayne (Indiana) where "Old Crown" beer is "lazy-aged" to tasty perfection.

From incoming transport to cooker, the grains in this modern brewery are moved by Airstream in a swift, sanitary operation. They are (1) unloaded to bin storage, (2) conveyed from storage to automatic weighing in scale hoppers, and (3) transported to the brewing process. These are accomplished accurately and efficiently with a great

reduction in the cost of physical labor and its unavoidable errors.

If you have a handling problem involving dry granular or powdered materials, Dracco techniques and Dracco equipment can provide a cost-saving solution. Why not call in a Dracco engineer today? There is no obligation.

DRACCO CORPORATION Harvard Ave. and E. 116th St., Cleveland 5, Ohio

For further information on handling bulk materials with Dracco Airstream Conveyors write Dept. W-11, Cleveland 5, Ohio. Ask for Bulletin 529.



DRACCO

Performance Proved
Airstream CONVEYORS • DUST CONTROL EQUIPMENT

PRODUCTION . . .



ALFALFA TO TOOTH PASTE: Many means to the same end.

Gathering Up The Green

As demand increases, competition sharpens, chlorophyll technology moves "out of the kitchen," into the plant.

Two companies now take the lion's share of the market, but they are due for some stiff competition as all . . .

Six companies bid for a bigger share by improving their processes. Here's what they're doing:

Like most things, chlorophyll means different things to different people. To the adman, for instance, it's Nature's Magic Ingredient, the sure-shot cure for foul odors. To the puzzled man on the street, it's the stuff that makes grass (also toothpaste, soap and numerous other items) green. And though chances are he discounts the extravagant claims made for some of the "chlorophyll containing" products, he buys them just the same.

To a fistful of chemical companies, chlorophyll is a chemical with a multi-million dollar market. And to the man in the plant, it presents a challenge to his know-how in unit processes. A few years ago, when chlorophyll was a small-volume chemical (used in wick-type deodorants and as a colorant in soap) making chlorophyll, like baking a cake, was more of an art than a science. Now, since it has blossomed into a household word, there's a real incentive to work out smoother processing techniques.

The proof, if there's need of any, of the chlorophyll boom is clearly evidenced by the import figures over the past few years. The U.S. Tariff Commission reports that in 1950, total imports were less than 3,000 lbs. In 1951 that shot up to 12,000 lbs.

(valued at \$25,000) and in the first eight months of this year to over 19,000 lbs. (valued at close to \$390,000). The same trend is pointed up by sales at the retail level, although there it's difficult to get an unbiased estimate. But the Rystan Co. (New York) sold about \$6,000 of chlorophyll products in 1945. One estimate places sales for the entire industry in 1951 at the retail level at \$22 million, puts the 1952 figure at \$59 million.

New Names: The skyrocketing demand at the consumer level brought some famous chemical names into the picture as producers of the basic chlorophyllin salts. The roster of manufacturers now includes Strong Cobb & Co. (Cleveland) which bought the pioneer producer, American Chlorophyll (Lake Worth, Fla.); Archer-Daniels-Midland (Minneapolis), which bought out both Keystone Chemurgic (Bethlehem, Pa.) and Chlorophyll, Inc. (Neodosha, Kans.); and the Glidden Co. (Cleveland) which decided to try its hand at chlorophyllin production in September, just last month made a trial run at its Buena Park (Calif.) flaxseed-soybean extraction plant.

The same hike in demand moved Chlorophyll Chemical Corp. to buy the McAllen (Tex.) plant of Valley Vita-

purity and uniformity
through
rigidly controlled
production,
develop outstanding
products.

We offer you every
form of chemical
service to abet your
quality control.



DOUBLE BARREL ADVERTISING

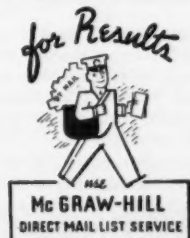
Advertising men agree—to do a complete advertising job you need the double effect of both Display Advertising and Direct Mail.

Display Advertising keeps your name before the public and builds prestige.

Direct Mail supplements your Display Advertising. It pin-points your message right to the executive you want to reach—the person who buys or influences the purchases.

In view of present day difficulties in maintaining your own mailing lists, our efficient personalized service is particularly important in securing the comprehensive market coverage you need and want.

Ask for more detailed information today. You'll be surprised at the low overall cost and the tested effectiveness of these hand-picked selections.



McGraw-Hill Publishing Co., Inc.
330 West 42nd St., New York 18, N. Y.

OLDBURY

ELECTRO-CHEMICAL COMPANY

PHOSPHORUS (Yellow or White)	PHOSPHORIC ANHYDRIDE
PHOSPHORUS OXYCHLORIDE	PHOSPHORIC ACID
PHOSPHORUS TRICHLORIDE	SODIUM CHLORATE
PHOSPHORUS PENTACHLORIDE	POTASSIUM CHLORATE
PHOSPHORUS PENTASULFIDE	POTASSIUM PERCHLORATE
PHOSPHORUS SESQUISULPHIDE	HYPOPHOSPHITES
AMORPHOUS PHOSPHORUS	OXALIC ACID
ZINC PHOSPHIDE	

Plant and Main Office:

NIAGARA FALLS, NEW YORK

New York Office:

19 RECTOR ST., NEW YORK 6, N.Y.

PRODUCTION

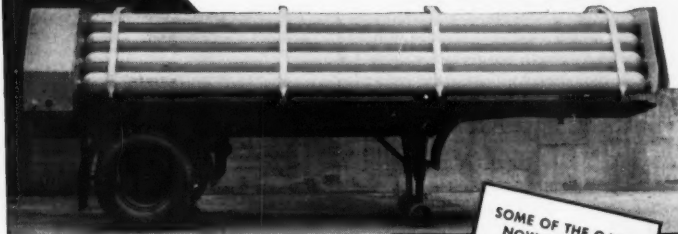
mins, formerly a Godfrey Cabot subsidiary. And it caused some of the present producers to embark on ambitious expansion programs. For instance, last month National Chlorophyll & Chemical Co. (Lamar, Colo.) broke ground on a new \$1 million chlorophyllin plant. Presently the firm is making 600-1,000 lbs. a month in an outsized pilot plant. It expects the new plant will turn out 100,000 lbs. a year. Alfalfa for the project will come from National Alfalfa & Milling Co., owner of 46% of National Chlorophyll's stock.

Moreover, Minnichlor, Inc. (Enfield, Minn.), now marketing 10 lbs. of chlorophyllins a day, has equipment on order which, it says, will boost capacity to 70-80 lbs. a day before the year is out.

It's hard to see just where all the increase in capacity will go. Though you can't pin the present market down with any degree of accuracy, the best guess is that it's in the neighborhood of 10-11,000 lbs. a month. Of that, the American Chlorophyll Division (of Strong Cobb) probably accounts for 4,500 lbs.; ADM, 3,000 lbs.; imports, 2,000 lbs.; the rest from smaller producers.

Process Scurry: In any case, it's clear that although production has lagged behind demand for the past two years, capacity in place and on-the-way increases will be more than enough to meet any future demands. Hence, all the producers are working on more efficient processes either to snag or hold onto a share of the market.

Save Manpower WITH New TAYLOR-WHARTON GAS TRANSPORTS



Taylor-Wharton, long a producer of High Pressure Cylinders and Trailer Tubes, now provides completely assembled trailer transports for Oxygen, Hydrogen, Nitrogen, Boron Trifluoride, etc., tested to I.C.C. specifications.

These units replace 200 to 400 average size cylinders, improve deliveries, and reduce man-handling to zero. Let us give you comparative costs.

- Seamless Steel Cylinders for high pressure gases.

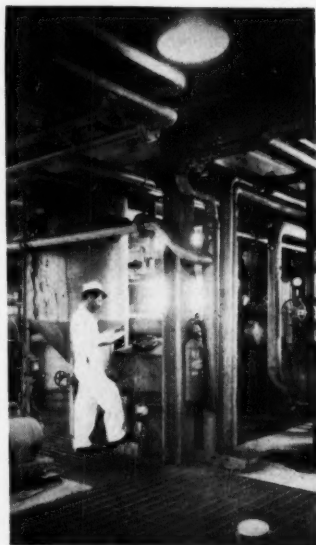
TAYLOR-WHARTON IRON & STEEL CO.

GENERAL OFFICES

Beech St., Cincinnati 12, Ohio

SOME OF THE GASES
NOW CARRIED IN
GAS TRANSPORTS:
Oxygen Helium
Nitrogen Hydrogen
Ethylene
Boron Trifluoride

FOUNDED
1742



CHLOROPHYLL PROCESSING: To the slickest belong the spoils.



CHLOROPHYLL TESTING: An inherent anomaly in the method.

American Chlorophyll, the first producer, offers a good case in point. When it was the only producer in the field, its process looked like this: Alfalfa, shipped in from Kansas, was extracted with hexane. Then the chlorophyll-containing extract was saponified with caustic potash (or caustic soda) to form the water-soluble potassium (or sodium) salt of chlorophyllin. The water solution was then treated with copper sulfate under controlled pH to increase the light stability of the product by substituting copper for the magnesium present in the original chlorophyll molecule. After centrifuging and drying in a spray dryer, a dark blue-green powder was obtained that varied in chlorophyll content between 50-120%.^{*} Yield was 6 lbs. per ton of alfalfa.

The hexane extracts (the unsaponifiables) after evaporation and treatment with ethanol and acetone yielded waxes and carotene, Vitamin A and —on distillation of the residues—phytol (precursor of Vitamin E). Sales of these by-products represented roughly 10% of the plant's income.

The alfalfa that remained after the chlorophyll was extracted was removed manually from the cast-iron cookers and hauled to farmers for fertilizer or cattle feed.

Then, last September, after being taken over by Strong Cobb, it called in the Blaw Knox Chemical Plants Division to engineer and equip a continuous extraction unit. It also engaged Blaw Knox to work up design and cost

^{*} This anomalous concentration of over 100% is due to an arbitrary standard of purity based on spectrophotometric absorption at 410 millimicrons of a 0.15% solution of a chlorophyll prepared in the laboratory. Apparently, the commercial chlorophyllins contain impurities that absorb at the same wave length.

CHEMICAL FINANCING

This bank specializes in chemical financing, particularly in connection with closely held or family owned companies.

We believe in the soundness of the American chemical industry and its prospects for growth and will look sympathetically upon companies or individuals who have financial problems in this field.

Chemical Department

Empire Trust Company

120 BROADWAY, NEW YORK, N. Y.

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

KESSCO PRODUCTS

CHEMICAL SPECIALTIES

BUTYL STEARATE BUTYL OLEATE

BUTYL "CELLOSOLVE"* STEARATE

METHYL "CELLOSOLVE" OLEATE

DIBUTYL TARTRATE

*TRADE MARK OF C & CC DIV.

STEARATES
OLEATES

PALMITATES
RICINOLEATES
LAURATES

for the

**Textile, Cosmetic, Pharmaceutical
Petroleum, Plastic and Allied
Industries**

KESSLER CHEMICAL CO., INC.

ESTABLISHED 1921

STATE ROAD and COTTMAN AVE. PHILADELPHIA 35, PA.

Koppers Tar Acids



meet your most
exacting requirements
... consistently!

● You can count on Koppers Tar Acids to meet your required specifications—and to do it consistently. You'll find, too, that these acids are always high in quality, and possess exceptional uniformity.

Koppers Tar Acids are especially valuable in the production of synthetic resins, tricresyl phosphate, disinfectants and soaps; also, for the purification of lubricating oils.

**PHENOL . . . 90-92%
... 82-84%**
**CRESOLS . . . Meta Para
... Ortho . . . U.S.P.
SPECIAL RESIN CRESOLS**

**CRESYLIC ACIDS
... 99% purity . . . a complete line of all distillation ranges . . . with composition and freedom from impurities making them appropriate for all purposes.**

KOPPERS COMPANY, INC.
Tar Products Division
Pittsburgh 19, Pa.

KOPPERS

Coal Chemicals

Help Wanted . . .

for the over-burdened chemical executive!

How would you like to get out from under the mass of printed material showered down on you in these busy days? How would you like to get all the vital news of your industry condensed between the covers of one interesting publication?

That's what **CHEMICAL WEEK** offers. A complete information service for the busy chemical executive, written in crisp, straight-forward, non-technical style, to cut your reading time and increase your grasp of significant news and trends.

No longer is there need to wade through dozens of magazines each week to sift out the chemical news you must have for the successful operation of your business. You can have all the important news, happenings and trends—and you can have them **FIRST**—with **CHEMICAL WEEK**, the leading business-news magazine of the chemical process industries.

You can get 52 news-packed issues—including the famed **CHEMICAL WEEK Buyers' Guide**, published in the Fall of each year,—for only \$5. Fill in and mail the coupon below. We'll start service to you with the next issue.

Chemical Week
330 W. 42nd St.
New York 36, N. Y.

Yes, enter my Chemical Week subscription for one year at \$5*. ☐ I will pay when you bill me. ☐ I enclose remittance.
☐ 3 years for \$10* or ☐ 2 years for \$8*

Name Position

Address

City Postal Zone State

Company

Our Primary Business is

* Above rates are for U. S. and U. S. Possessions ONLY.
Canada: \$6 ☐ 1 year ... \$10 ☐ 2 years ... \$12 ☐ 3 years.
Latin America: \$15 ☐ 1 year ... \$25 ☐ 2 years ... \$30 ☐ 3 years.
Other Countries: \$25 ☐ 1 year ... \$40 ☐ 2 years ... \$50 ☐ 3 years.

PRODUCTION

estimates for a new chlorophyllin plant.

Archer-Daniels-Midland has also put in a continuous extraction unit. It adapted a soybean extraction unit at Mankato (Minn.) to chlorophyll extraction. Miscella (the oil-solvent mixture) from Mankato is shipped to the processing plants at Bethlehem and Neodosha where it is saponified, then treated with copper sulfate, ferrous oxide or ferrous sulfate to produce the metallic salt desired by the customer. ADM's process is probably similar to Strong Cobb's except for a variation in solvent.

Glidden's present plans call for making only the crude extract, leaving further refining and marketing to others. However, the extraction of crude alfalfa fits in nicely with its operations since, with only slight modifications, the Buena Park plant can be changed over from processing soybeans or flaxseed to alfalfa. It can treat 50 tons a day, from which it can get 400 lbs. of chlorophyll. The process to be employed was developed by Research Director Percy Julian, is still confidential.

The Valley Vitamins plant taken over by Chlorophyll Chemical Corp. was originally built to produce carotene, operated for about a year before it closed down in 1949. Well written up in the literature, the process employed a Tssett chromatographic column. Chairman of the Board Sinclair Robinson now tells CW that in converting from carotene to chlorophyll, efficiency of the process has been raised from 41% to 93%. Says he: "We've retained the absorption column principle but use selective absorbents rather than the absorption columns." He adds that the plant is fed by alfalfa grown in the Rio Grande Valley, but is supplemented by other crops such as collards, broccoli and carrot tops—substances that run high in chlorophyll. On a three-shift basis, says Robinson, Chlorophyll Chemical can turn out 500 lbs. a month.

National Chlorophyll reports that it too has a continuous extraction. It extracts alfalfa with a mixture of hexane and acetone. The extract is concentrated, saponified, then treated with copper sulfate. The firm claims to be getting 5-8 lbs. of chlorophyll per ton of dry alfalfa.

Minnichlor's chief claim to processing fame is a low-temperature extraction. Minnesota alfalfa is dehydrated in nearby mills, then pulverized in a hammermill. The chlorophyll is then extracted with hexane at 70-80 F. Minnichlor says others do it at 140 F.,

PRODUCTION

thus there is less heat decomposition in its process. After extraction, the solution is concentrated, then purified. The purification step, Minnichlor regards as a trade secret. It reports a yield of 4-9 lbs. of chlorophyllins per ton of alfalfa.

EQUIPMENT

Floating Cover: Recco Sales Co. (New York City) claims some new features for its line of chemical mixing and storing tanks. Biggest feature, says Recco, is an inert plastic cover that fits firmly against the sides of the tank, floats on top of the contents. The plastic cover is transparent, thus permits a constant, visual check on the contents. Recco also claims that it reduces danger of contamination, oxidation and evaporation of the contents.

All In One: The Sintering Machinery Corp., Transportometer Division, (Netcong, N.J.) is now introducing its



On Their Own Time

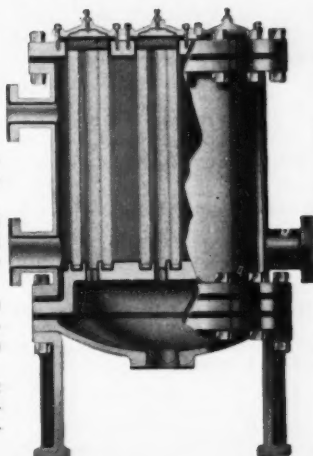
IT'S THE HUMAN FACTOR that causes many industrial accidents, and it's the human factor that good design can reduce but can't eliminate. The result is that safety-wise companies spend a lot of time and effort putting safety messages on bulletin boards and around the plant. Now Continental Can has what it considers a decided improvement over the usual ways of putting the same message across: It prints safety slogans on paper drinking cups. The theory is that the employees absorb the message more effectively on their own time, while they are relaxed and untroubled by their work.

ADAMS

the filters with BACKWASH-ABILITY

**IN LINED FILTERS TOO
COLLECTED SOLIDS ARE PURGED
QUICKLY, EASILY, THOROUGHLY**

- Backwash without disassembly or removal of any part. Filter is on stream again in a few minutes.
- High velocity backwash with filtered fluid forced by surge tank air head insures complete purging of filter elements and shell.
- Adams Para-Stone or Para-Carbon filter elements, impervious to corrosion at any pH, may be used with or without filter aid.
- Choice of natural rubber, synthetic or lead linings that cannot be attacked by nor contaminate any industrial acid or alkali.



Bulletin 430 shows flow diagrams. Write for a copy.

R. P. ADAMS CO., INC. 240 PARK DRIVE
BUFFALO 17, N. Y.

DRYMET*

ANHYDROUS SODIUM METASILICATE

DRYMET is the most highly concentrated form of metasilicate available, because it contains no water of crystallization. Unique among alkalis—it combines strength with buffering action which prevents abrupt changes in pH. If you use alkali—investigate DRYMET.

A granular, free-flowing alkali with the following properties:

Formula..... Na_2SiO_3

Molecular Weight... 122.06

Na_2O 51%

pH in a 1% Solution... 12.75

Quickly and completely soluble in water up to a concentration of 35% 1.0 lb. DRYMET equivalent to 1.6 lbs. sodium metasilicate pentahydrate.

**WRITE FOR
DRYMET File
Folder contain-
ing complete
technical infor-
mation.**

*Reg. U. S. Pat. Off.



COWLES CHEMICAL COMPANY

7016 Euclid Avenue

Cleveland 3, Ohio

tracers...to opportunities in the

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

MANAGEMENT SERVICES

EVANS

Chemical Research—Processes—Products
Development Problems
Complete Laboratory—Pilot Plant
Mechanical & Optical Sections
Ask for new Scope Sheet C
listing over 100 of our activities

EVANS RESEARCH & DEVELOPMENT CORP.
250 East 43rd St., N. Y. 17, N. Y.

THE JAMES F. MUMPER CO.

Engineers

Plant design, buildings and services, Details & specifications, Process & equipment development, Modernization, Improvements, Surveys & reports.

313-14-15 Everett Bldg. Akron 8, Ohio
Phone, Je. 5939 — Je. 4543

JAMES P. O'DONNELL

Engineers

CHEMICAL PROCESS PLANTS

Design—Procurement—Construction Supervision

39 Broadway, New York 6

HILLARY ROBINETTE, Jr.

Chemical Consultant

TECHNICAL AND ECONOMIC SURVEYS
PRODUCT DEVELOPMENT
CHEMICAL MARKET RESEARCH

P. O. Box 607 Ardmore, Pa.
Telephone: Midway 2-6457

SIRRIE

ENGINEERS

Plant Design & Surveys covering Chemical, Electrochemical and Metallurgical Production; Industrial Waste Disposal; Water Supply & Treatment; Analyses & Reports

Greenville South Carolina

EMPLOYMENT

Positions Vacant

EXPERIENCED CHEMICAL SALESMAN

WANTED
by
RAPIDLY EXPANDING
AAA-1 CHEMICAL COMPANY

- Good Starting Salary
- Expenses
- Bonus
- Free Hospitalization
- Insurance

The growth of our organization has exceeded our present sales force. Life time opportunity for man chosen.

Applicants should have following qualifications:

- Basic chemical knowledge
- Successful sales record
- Acquaintance with organic chemicals
- Acquaintance with surfactants
- Willing to travel or relocate
- Age 20-35

P5766 CHEMICAL WEEK
330 W. 42nd St., New York 36, N. Y.

Selling Opportunity Offered

Manufacturers' Representatives preferably with established sales organization wanted for highly promising line of fungicides-bactericides with unusual properties. Connections in the field of fungicide-bacterial applications necessary. Will consider exclusive territories. RW-6010, Chemical Week.

Positions Wanted

Available

MANAGEMENT ENGINEER

Specialist in Organization. Procedures & Systems covering all functions Chemical Mfg. Experienced Organization Planning, Management Guides, and streamlining procedures. Twenty-seven years background Administration, Engineering, Sales, Accounting, Finance, high level supervision. Seeks opportunity to show substantial reduction in company overhead thru application proven management principles. Permanent position or consulting. Now located near middle U.S. Complete personal resume on request.

PW 5979 CHEMICAL WEEK

520 N. Michigan Ave., Chicago 11, Ill.

Executive's Technical Assistant Organic chemist, Ph.D. 20 years of highly diversified research and development experience with major companies. At present Research Director. Sales-minded. Qualified to be executive's "right arm" on technical matters. PW-6014, Chemical Week.

Instrument Engineer desires position in process industry. 8 years experience on Pneumatic, Mechanical, Electrical inst. Supervised repair department. PW-5959, Chemical Week.

Selling Opportunity Wanted

Manufacturers' Representative, Chemical Engineer, 15 years industrial experience, now covering Michigan, Ohio and Indiana, will accept one or two additional lines. RA-5967, Chemical Week.

SPECIAL SERVICES

Processes

Custom Manufacture?

Eastern chemical producer has substantial facilities for the manufacture of fine chemicals and chemical specialties. All inquiries confidential.

Box CW3723 Chemical Week
330 W. 42nd St., New York 36, N. Y.

EQUIPMENT—used-surplus

For Sale

Autoclaves, Steel, Hor. 66"x14", First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Calender, New 6x12", Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

Centrifugal 36"x40", Bird, Continuous, Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Centrifugal: Tolhurst suspended 26", stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Centrifugals, Bird 48", Rub. Covered. First Machinery, 157 Hudson St., N.Y. 13, N.Y.

Clarifier: Sharples Vapor-Tite, stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Dryer, Vacuum Shelf, 20 shelves, 59 x 78, pump, cond. (6). Consolidated Products, 18 Park Row, N.Y. 38.

Dryers, 2 8frk 32x90 dble. drum, 55 accessories, comp. Eagle Industries, 108 Washington St., NYC.

Dryers, 2 Stainless Drums; 5'x10'. First Machinery Corp., 157 Hudson St., N. Y. 13, N. Y.

Filter Press, 18" x 18", Sperry, Iron, P & F, 11 chambers (20) Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30"x30", Iron, Sperry, steam heated, 30 chambers. Consolidated Products, 18 Park Row, N.Y. 38, N.Y. Barclay 7-0600.

Filter Press, 42" x 42", Iron, Shriver, 18, 27, 36, 54 Chambers (12). Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30" x 30", Aluminum, 45 Chambers, Consolidated Products, 18 Park Row, N.Y. 38.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Filters—Sparkler stainless steel filter with feeder, immediate delivery. Chas. S. Jacobowitz Co., 3080 Main St., Buffalo 14, N.Y. Phone Amherst 2100.

Labelers, All types, Rebuilt & Guaranteed. Process Industries, 305 Powell St., Brooklyn.

Mill New 6x12; Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

Mills, Raymond #5047, High Side Roller, (2). Consolidated Prods., 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22", 5'x20", 4'6"x18'6", 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Mixers, 700 gal. Turbo, Simplex, Jktd. (2). Consolidated Products, 18 Park Row, N.Y. 38.

Mixer—Banbury #3 with 100 HP motor. Equipment Clearing House, 285—10 St., Bklyn 15.

Mixer, horiz. ribbon, 14'x7'6"x6", jktd. 450 cu. ft. Consolidated Prods., 18 Park Row, N.Y. 38.

Mixer: Readco double sigma arms, 250 gal., stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Pebble Mill: Hardinge 5'x36" buhrstone lined. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Pebble Mills: 8'x8', Porcelain lined. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Pebble Mills 10 gal. to 800 gal., porcelain lined, 20. Consolidated Products, 18 Park Row, NY 38.

Pumps, S/S Centr. Labour, self-prim. 5 and 10 HP. (6). Consolidated Products, 18 Park Row, N.Y. 38.

Reactors, Pfaudler Jktd. 400 Ga. First Machinery Corp., N.Y. 13, N.Y.

Tablet Press, No. 5/4, Colton 3" maximum. Consolidated Products, 18 Park Row, N.Y. 38.

Tanks, S/S, from 30 gal. to 8700 Gal. Perry Equipment Corp., 1415 N. 6th St., Phila. 22, Pa.

Tank, S/S, 13,500 gal. Vert. closed agit., S/S coils, 2 1/2 HP motor. Consolidated Products, 18 Park Row, N.Y. 38.

Tanks, 2 10,000 gal. SS Storage, excel. Cond. Eagle Industries, 108 Washington St., NYC.

Tanks, Rubber Lined, 10,000 gal. vertical, closed, with Turbo Agitator 25 HP motor and Pipe coils. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks — 15 glass-enamel lined tanks, located Brooklyn, N.Y., and Buffalo, for immediate delivery; also more than 400 steel tanks, horizontal and vertical, Rochester, Indiana, Chicago, Buffalo. Chas. S. Jacobowitz Co., 3080 Main St., Buffalo 14, N.Y. Phone Amherst 2100.

chemical process industries

For Sale

Tanks, Steel, Processing, 15,000 gal. vertical, 80 lbs. int. pr.; Turbo agitator 40 HP motor, pipe coils. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, Pfaudler, 500 Gal, 55, Mixing. Process Industries, 305 Powell St., Brooklyn.

Tanks, Alum, closed — 330, 480 and 1450 gal. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, Glass Lined Steel Storage. A. O. Smith korr. completely fitted with outlet valves and manholes. 4—27,900 gals. cap. ea. 11'3" dia. 41' 1. 4—13,950 gals. cap. ea. 8'2" dia. 36'6" 1. 4—6,975 gals. cap. ea. 10' dia. 13' 1. 3—6,810 gals. cap. ea. 10'3" dia. 12' 1. Call or write J. Bowers or R. J. Asbeck, Fox Brewing Co., 320 Ottawa Ave. Grand Rapids, Michigan.

Tanks, Lastiglas Lined — Hori. 8 — 23,126 gals. average cap. ea. 11' dia. 31' 1. Call or write J. Bowers or R. J. Asbeck, Fox Brewing Co., 320 Ottawa Ave., Grand Rapids, Michigan.

Tanks, Lastiglas Lined — Vertical 1—4,030 gals. cap. 9' dia. 10' h. 1—2,790 gals. cap. 8' dia. 9' h. 2—1,860 gals. cap. ea. 6' dia. 10' h. 2—930 gals. cap. ea. 6' dia. 10' h. Call or write J. Bowers or R. J. Asbeck, Fox Brewing Co., 320 Ottawa Ave. Grand Rapids, Michigan.

Tanks, Mammoth Lined Hori. 12 — 9,145 gals. average cap. ea. 7' dia. 31' 1. Call or write J. Bowers or R. J. Asbeck, Fox Brewing Co., 320 Ottawa Ave., Grand Rapids, Michigan.

Vacuum Pan: Harris 6' stainless steel. Loeb Equip. Co., 1927-A W. North Ave. Chicago 22.

Wanted

FITTINGS—VALVES WANTED

WE PAY BIG MONEY
FOR SURPLUS VALVES & FITTINGS
PIPE COUPLINGS ALL SIZES
BLACK & GALV.

New is the time to clean out your dead stock
DANIEL SMITH VALVES & FITTINGS CORP.
311 East 31 St., N.Y.C. 16, N.Y. MU-3-3408

Wanted at Once

Chemical Equipment for Defense Plant Work
Autoclaves Kettles
Centrifuges Mixers
Dryers Pressers
Filters Pulverizers
Tanks

Interested in complete plants—either now operating
or idle. Give full particulars when writing
W 3117 Chemical Week
330 W. 42nd St., N.Y. 36, N.Y.

Machinery, Chemical and Process. Everything
from single item to complete plant. Consolidated
Products, 18 Park Row, N. Y. 38.

WANTED

FOUR 125 LB. SQUARE INCH WP VERTICAL
AUTOClaves JACKETED, AGITATED, STEEL
GLASS LINED, OR STAINLESS, MAXIMUM
DIAMETER OF JACKET 8' -0".
CAPACITY 2500 GALLON MIN. TO 4000 GALLON MAX.

W 5966 Chemical Week
520 N. Michigan Ave., Chicago 11, Ill.

DEALERS in used-surplus

Consolidated Products Co., Inc.

Largest and Oldest Dealer
in Used and Rebuilt Machinery.

18 Park Row, New York 38, N. Y.
BArcley 7-0600

Shops: 331 Doremus Ave., Newark 2, N. J.

Your First Source

NEW YORK'S
LARGEST STOCK
RENTAL-PURCHASE PLAN

FIRST MACHINERY CORP.
157 Hudson St., N. Y. 13
Phone WORTH 4-5900

R. Gelb & Sons, Inc.

Largest stock of used chemical
equipment in the United States
66 Years of Leadership

R. Gelb & Sons, Inc.
Union, N. J.
Unionville 2-4900

WORLD'S LARGEST INVENTORY

MOTORS — GENERATORS — TRANSFORMERS

New and Guaranteed Rebuilt

1 H.P. to 2500 H.P.

FREE CATALOG

ELECTRIC EQUIPMENT CO.

P. O. Box 51 Rochester 1, N. Y.

CHEMICALS OFFERED

Red Oxide—70% Fe_2O_3 (10,000 ton), from ASIA.
Tele: Kingsley 6-0736 (9 to 10 A.M.) Write—
Anron Doriman, Bailey Bldg., Phila.

Urea. Prompt delivery offerings also invited.
Tobey Chemical Company, 1472 Broadway, N.Y.
Longacre 4-2520.

Tartaric Acid, USP (Meets ACS Specs), Continual
Stocks, 25% Below Schedule. Mercer Chem. Corp.,
11 Mercer St., NYC. WO 4-4540

CHEMICALS WANTED

Chemical Service Corporation

READY TO BUY
Chemicals, Plasticizers, Solvents
Drugs, Pharmaceuticals, Oils
Pigments, Colors, Waxes, etc.

CHEMICAL SERVICE CORPORATION
96-02 Beaver Street, New York 3, N. Y.
HA 6069-2-6970

BUSINESS OPPORTUNITIES

Versatile chemical manufacturer desires to handle
your small-lot commercial chemical requirements. Prompt attention will be given your inquiries. Ramapo, 168 Mohawk Drive, River Edge, N.J.

WANTED

PRODUCT OR BUSINESS

FOR DIVERSIFICATION

Our client, an established manufacturer in southern
Tennessee, will buy a distinctive industrial specialty
product, preferably non-mechanical, with market
acceptance established;

or a going business of the same type, within 400
miles of present location, earning up to \$700,000
before taxes.

Please write referring to and enclosing this advertisement, No. 41. Brokers protected.

CHARLES H. WELLING & CO., INC.

52 Vanderbilt Avenue New York 17, N. Y.
Consultants in diversification and new products

PRODUCTION

feed regulating Transportometer. The machine is designed to move any finely divided material used in the process industry at a constant, pre-set rate. It gives a direct reading of the total mass moved as well as the rate in tons/hr., lbs./min. or other units. It's claimed to weigh, regulate and indicate totals with an accuracy of 99% or better.

Made of Dynel: The Felters Co. (Boston) reports it is now producing Dynel-Mat, multilayer webs of dynel, in thicknesses from 1/100 to 1/4 in. The firm figures that dynel's resistance to chemicals, fungus and insects, its weight and dimensional stability, makes Dynel-Mat a natural for applications involving filtering, lining or cushioning under severe conditions.

Easy Greasing: The problem at American Cyanamid's fluid cracking catalyst plant at Fort Worth (Tex.) was frequent operational failures of a screw pump caused by inadequate arrangements for lubrication. The solution, as suggested by one of the company's repairmen (for which he received a \$600 award from the suggestion system) was to drill a hole in the pump's drive shaft, then insert a grease fitting to parts that weren't being properly lubricated. The result, says Cyanamid, is a reduction of wear and tear on pump parts, fewer repair bills, and stepped-up operation of the pump.

Move to Canada: Taking cognizance of Canada as a growing center of process industry, Chiksan Co. (Brea, Calif.) has purchased 9 acres of land in Brantford, Ont., will build a plant to make the firm's line of ball-bearing swivel joints, used to provide flexible lines for the flow of fluids and gases under extreme pressures and temperatures. The firm also expects to make unions, blocks and other products of its Well Equipment Corp. Division.

Fork Truck Rodeo

Pitting their driving skill against one another, Monsanto Rubber Service Division's fork truck operators competed in a "rodeo" at their recent plant picnic (Nitro, W. Va.).

Increasingly popular at plant get-togethers, the "rodeo" consists of running an obstacle course. Each man is timed as he drives through narrow, winding aisles, picks up a drum, places it on a pallet, sets the pallet down within 6 inches of the finish line. Contestants are judged not only on speed and control, but also on compliance with posted safety rules and directions.

BOOKLETS

Chemicals

Tall Oil

4-p. brochure discusses application of Tall Oil to flotation processes. Some aspects touched upon are: collectors, modifiers, frothers, phosphate rock flotation, and flotation principles. Featured is a topics sheet giving news items on tall oil marketing, applications and developments. Request Bulletin No. 11, The Tall Oil Assn., 122 East 42nd St., New York 17, N.Y.

Heliogen Colors

16-p. booklet describes properties and uses of Heliogen colors, giving information on the powder brands, paste and presscake brands, water-dispersible powder brands and water-dispersible paste brands. The Heliogens are for use in enamels, flushing in oils, lacquers, paper, plastics, printing inks, and textile printing. General Dyestuff Corp., 435 Hudson St., New York 14, N.Y.

Research Charts

16 data sheets on general biological, organic and enzymatic products including properties, uses, packaging and applications of such preparations as: dextrose, iodoaliphonic acid, protamine sulphate,

phosphatase reagents and enzymes for starch liquefaction. Paul Lewis Laboratories, 4253 North Port Washington Ave., Milwaukee 12, Wis.

Molding Powders

12-p. booklet on Plexiglas acrylic molding powder shows applications and designs for products and uses in such fields as lighting, signs, appliances, and glazing and industrial parts. Data on physical, optical, electrical and chemical properties are included. Plastics Department, Rohm and Haas Co., Washington Square, Philadelphia 5, Penna.

Equipment

Recorders and Indicators

46-p. catalog contains information concerning Elektronik non-control precision instruments, which employ a potentiometer, Wheatstone bridge, or other measuring circuit to measure temperature, pressure, flow, pH and other variables. Information on specially adapted instruments such as function plotter, recorder, and double range precision indicator is included. Request Catalog 1520, Minneapolis-Honeywell Regulator Co., Brown Instruments Division, Wayne and Windrim Aves., Philadelphia 44, Penna.

Oil Field Equipment

20-p. bulletin on equipment for the generation, transmission, distribution, and utilization of electric power in oil-field and pipe-line applications discusses operational problems of deep-well drilling and oil-well and pipe-line pumping. Request Bulletin GEC-928, General Electric Corp., Schenectady 5, N.Y.

Radiation Detection

16-p. brochure describes all types of radiation detection and health instruments. Included are electronic instruments; Geiger, proportional and scintillation counters; health instruments; shields and safety devices. Dept. FP-11, Radiation Counter Laboratories, Inc., 5122 West Grove St., Skokie, Ill.

Magnet Alloys

16-p. booklet reviews commercially available permanent magnet alloys, especially the Alnico family. Advantages, limitations, characteristics of ductile permanent magnets (cunife and cunico) and of special permanent magnets (silver or platinum alloys) are described. Representative magnetic properties and composition of 23 alloys are given in a table. International Nickel, Dept. EZ, 67 Wall St., New York 5, N.Y.

CHEMICAL WEEK • ADVERTISER'S INDEX • NOVEMBER 22, 1952

ADAMS CO., INC., R. P.	773
Agency—Melvin F. Hall Advertising Agency, Inc.	
AMERICAN CYANAMID CO.	20, 21
Agency—Hazard Advertising Co.	
AMERICAN RESINOS CHEMICALS CORP.	1
Agency—Bennett-Walker-Moeller, Inc.	
AUTOMATIC SPRINKLER CORP. OF AMERICA	42
Agency—The Robert A. Joyce Co.	
BAKER & ADAMSON PRODUCTS, GENERAL CHEMICAL DIVISION, ALLIED CHEMICAL & DYE CORP.	3rd Cover
Agency—Aderton & Currier, Inc.	
BAKER CHEMICAL CO., J. T.	27
Agency—Wildrick & Miller, Inc.	
BARCOO OIL COMPANY	6
Agency—White Advertising Agency	
BEMIS BROS., BAG CO.	34
Agency—Gardner Advertising Co.	
CARBIDE & CARBON CHEMICALS CO., A DIVISION OF UNION CARBIDE & CARBON CORP.	9
Agency—J. M. Mathes, Inc.	
CELANESE CORP. OF AMERICA	61
Agency—Ellington & Co., Inc.	
CHEMICAL CONSTRUCTION CORP.	36
Agency—Michael-Casler, Inc.	
CLEVELAND ELECTRIC ILLUMINATING CO., THE	14
Agency—D'Arcy Advertising Co.	
COLUMBIA-SOUTHERN CHEMICAL CORP.	39
Agency—Ketchum, MacLeod & Groves, Inc.	
COMMERCIAL SULFONATES CORP.	19
Agency—Fuller & Smith & Ross, Inc.	
CONTINENTAL CAN CO.	58
Agency—Batten, Barton, Durstine & Osborn, Inc.	
CORN PRODUCTS REFINING CO.	38
Agency—J. Hayden Davis Advertising	
COWLES CHEMICAL CO.	673
Agency—The Barlow-Ross Co.	
CROLL REYNOLDS, INC.	7
Agency—Sterling Advertising Agency, Inc.	
DAVIES NITRATE CO., INC.	851
DEGEN & CO., INC., GEORGE	751
DEMPESTER BROS., INC.	65
Agency—Charles S. Kane	
DOW CHEMICAL CO., THE	67
Agency—MacManus, John & Adams, Inc.	
DRACCO CORP.	68
Agency—The Jayne Organisation, Inc.	
EL DORADO OIL WORKS	28
Agency—Sidney Garfield & Associates, Advertising	
EMPIRE TRUST CO.	771
FAIRBANKS, MORSE & CO.	43
Agency—The Buchen Co.	
FARVAL CORP., THE	10
Agency—The Griswold-Ehrlmann Co.	
FILTROL CORP.	4
Agency—Heintz & Co., Inc.	

FINE ORGANICS, INC.	763
Agency—Sid N. Ottin Advertising	
FULTON BAG & COTTON MILLS	22
Agency—Herbert Rogers Co.	
GAYNER GLASS WORKS	33
Agency—Sommers-Davis, Inc.	
GIRDLER CORP., THE	35
Agency—The Griswold-Ehrlmann Co.	
GLYCERINE PRODUCERS ASSOC.	35
Agency—G. M. Barford Co.	
GUARANTY TRUST CO. OF NEW YORK	64
Agency—Albert Frank-Guenther Law, Inc.	
HALL CO., THE C. P.	40
Agency—Crittenden & Egg Advertising	
HOOVER ELECTROCHEMICAL CO.	45
Agency—Charles L. Rumrill & Co., Inc.	
HUDSON PULP & PAPER CORP.	25
Agency—Robertson & Buckley, Inc.	
INTERNATIONAL MINERALS & CHEMICAL CORP.	31
Agency—C. Franklin Brown, Inc.	
JEFFERSON CHEMICAL CO., INC.	29
Agency—Hazard Advertising Co.	
KESSLER CHEMICAL CO., INC.	671
Agency—Sommers-Davis, Inc.	
KOPPERS CO., INC.	772
Agency—Batten, Barton, Durstine & Osborn, Inc.	
LIQUID CARBONIC CORP., THE	30
Agency—Fletcher D. Richards, Inc.	
MATHIESON CHEMICAL CORP.	2nd Cover
Agency—Dorle, Kilham & McCormick, Inc.	
MC LAUGHLIN GORMLEY KING CO.	663
Agency—The Alfred Colle Co.	
MICHEL & CO., INC. M.	754
Agency—Gardner Advertising Co.	
MONSANTO CHEMICAL CO.	8
Agency—Gardner Advertising Co.	
NATIONAL ANILINE DIV., ALLIED CHEMICAL & DYE CORP.	63
Agency—James J. McMahon, Inc.	
NEARKE WIRE CLOTH CO.	2
Agency—Sensinger-Fanning, Inc.	
NORTON CO.	13
Agency—James Thomas Chirurg Co.	
OIL CORRUGATING CO., THE	41
Agency—McClure & Wilder, Inc.	
OHIO & CHEMICAL PRODUCTS CO., INC.	66
Agency—Byrde, Richard & Pound	
OKLAHOMA PLANNING & RESOURCES BOARD	48
Agency—White Advertising Agency	
OLDBURY ELECTROCHEMICAL CO.	770
Agency—Briggs & Varley, Inc.	
OTTAWA CHEMICAL CO.	752
Agency—Philip A. Sinclair	
PACIFIC COAST BORAX CO.	60
Agency—Howard M. Irwin & Assoc.	
PELAMAY PRODUCTS	832
Agency—Martin Smith & Co.	
PENN. INDUSTRIAL CHEMICAL CORP.	56, 57
Agency—Walker & Downing, Advertising	
PETRO-CHEM DEVELOPMENT CO., INC.	8

Agency—Sam J. Gallay Co.	
RAYMOND BAG CO.	8
Agency—H. T. Shepard Agency	
SNEEL, INC., FOSTER D.	769
Agency—Ray Hawley	
SPARKLER MFG. CO.	44
Agency—Kreiter & Meloni, Inc.	
SPENCER CHEMICAL CO.	49
Agency—Bruce-Brewer & Co.	
SUNDHEIMER CO., HENRY	B54
Agency—Graudias Advertising, Inc.	
TAYLOR-WHARTON IRON & STEEL CO., INC.	B70
Agency—A. B. Bickner	
UNION CARBIDE & CARBON CORP., CARBIDE & CARBON CHEMICALS CO.	9
Agency—J. M. Mathes, Inc.	
U. S. STEEL CO.	82
Agency—Batten, Barton, Durstine & Osborn, Inc.	
VIRGINIA SMELTING CO.	32
Agency—Gray & Rogers, Advertising	
WIEGAND CO., EDWIN L.	37
Agency—Smith, Taylor & Jenkins, Inc.	
WITCO CHEMICAL CO.	Back Cover
Agency—Hazard Advertising Co.	

ADVERTISING STAFF

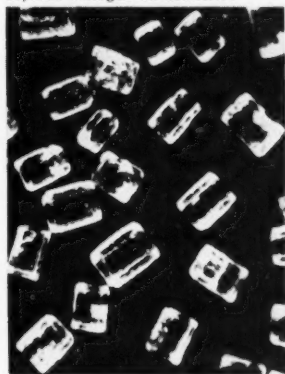
ADVERTISING SALES MGR.	B. E. Sawyer
BUSINESS MANAGER	Albert E. Weis
Atlanta 3	Ralph C. Manilaby, 1921 Rhodes-Haverty Bldg., Walnut 5778-3388
Chicago 11	Alfred D. Becker, Jr. Steven J. Shaw, 520 N. Michigan Ave. Whitehall 4-7909
Cleveland 15	Vaughan K. Dineen, 1810 Hanna Bldg., Superior 7000
Dallas 1	James Cash, First National Bank Bldg., Prospect 7-4064
Los Angeles 17	Joe H. Allen, 1111 Wilshire Blvd., Michigan 8891
New York 36	Knox Armstrong, Robert S. Muller, L. Charles Todaro, 420 West 42 St., Longacre 4-3000
Philadelphia 3	William B. Hannum, Jr., Architects Bldg., 17th & Sansom Sts., Rittenhouse 6-0670
San Francisco 4	Ralph E. Dorland, 68 Post St., Douglas 2-4600
Boston 16	850 Park Square Building, Hubbard 2-7160
Detroit 26	856 Penobscot Bldg., Woodward 2-1793
Pittsburgh 22	738 Oliver Bldg., Atlantic 1-4707
St. Louis 8	8215 Olive St., Continental Bldg., Lucas 4867

Now...for your Process Use

B&A AMMONIUM SULFATE, PURIFIED

gives you these advantages:

Crystals enlarged 10 diameters



- ☐ **Free-flowing**
- ☐ **Highly uniform crystal size**
- ☐ **Superior quality**
- ☐ **Extremely low in heavy metals**

PRODUCED IN TONNAGE quantities in a special free-flowing, highly uniform crystal form, B&A Purified Ammonium Sulfate differs distinctly from ordinary commercial ammonium sulfate. It is not a by-product material but is produced by B&A as a basic fine chemical from pure raw materials. It assays over 99% $(\text{NH}_4)_2\text{SO}_4$ and is extremely low in iron, lead and

arsenic, thus providing a superior quality for many exacting uses.

IF YOUR PROCESS CALLS FOR purified ammonium sulfate of unquestioned quality—specify B&A . . . you'll be buying the best.

READY-FOR-DELIVERY stocks are carried at B&A's own distribution stations from coast to coast. Any office listed below can handle your order promptly.

BAKER & ADAMSON *Fine Chemicals*

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N. Y.

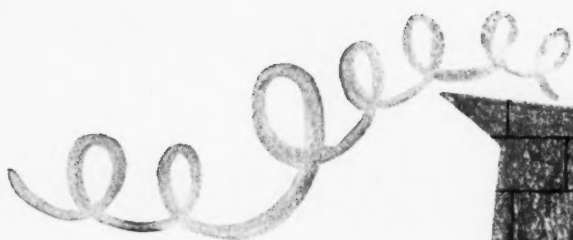
Offices: Albany* • Atlanta • Baltimore* • Birmingham* • Boston* • Bridgeport* • Buffalo • Charlotte • Chicago* • Cleveland* • Denver* • Detroit* • Houston • Jacksonville • Kalamazoo • Los Angeles • Minneapolis • New York* • Philadelphia* • Pittsburgh • Portland (Ore.) • Providence • St. Louis • San Francisco • Seattle • Yakima (Wash.)

In Wisconsin: General Chemical Company, Inc., Milwaukee

In Canada: The Nichols Chemical Company, Limited • Montreal* • Toronto* • Vancouver*
SETTING THE PACE IN CHEMICAL PURITY SINCE 1882

*Complete stocks are carried here.





What do you look for in a drier?

WITCO DRIERS*

offer all these advantages:

Low viscosity. Free-flowing at high or low temperatures.

Reliable metal content. Consistent results; uniform paint batches.

Excellent stability. Safe storage; assured clarity—no sludging or precipitation.

Excellent compatibility. Completely miscible with solvents, oils, resinous vehicles. Readily dispersible in paints.

Light color. Less staining.

A Witco Drier for every need . . .

Naphthenates (Ca, Co, Mn, Pb, Zn) . . . the traditional driers.

Octoic Driers (Co, Mn, Pb) . . . made from 2-ethyl hexoic acid, therefore of uniform composition, free from objectionable odors, light in color, low viscosity, with drying power comparable to naphthenate driers.

Witalls (Co, Mn, Pb) . . . improved tall oil driers. Pound for pound replacements for naphthenates, and quality driers in their own right.

Send for descriptive literature, or samples for your own evaluation.

* Made in Witco's Chicago plant.

WITCO



CHEMICAL COMPANY

295 Madison Ave., N. Y. 17, N. Y.

Los Angeles • Boston • Chicago • Houston
Cleveland • Washington • San Francisco
Akron • London and Manchester, England

Investigate These Witco-made Products:

Aluminum Octoate

Asphalt

Asphalt Specialties

Automobile Undercoatings

Rust Preventives

Sound Deadeners

Vibration Dampeners

Carbon Blacks

Copper Linoleate

Copper Oleate

Copper Naphthenate

Driers

Naphthenic Acid Driers

Lead-Cobalt-Calcium

Manganese-Zinc-Iron

Octoic Acid Driers

Lead-Cobalt-Manganese

Witall (Tall Oil) Driers

Lead-Cobalt-Manganese

Esters

Butyl Stearate

Butyl Oleate

Dibutyl Phthalate

Dibutyl Tartrate

Lead Linoleate

Lead Oleate

Metallic Stearates

Aluminum

Barium

Cadmium

Calcium

Lead

Lithium

Magnesium

Strontium

Zinc

M. R. (Hard Hydrocarbon)

Monty Wax®

Rubber Compounding Ingredients

Sunolite®

Vinyl Stabilizers

Witcarbs®

Witcotes®